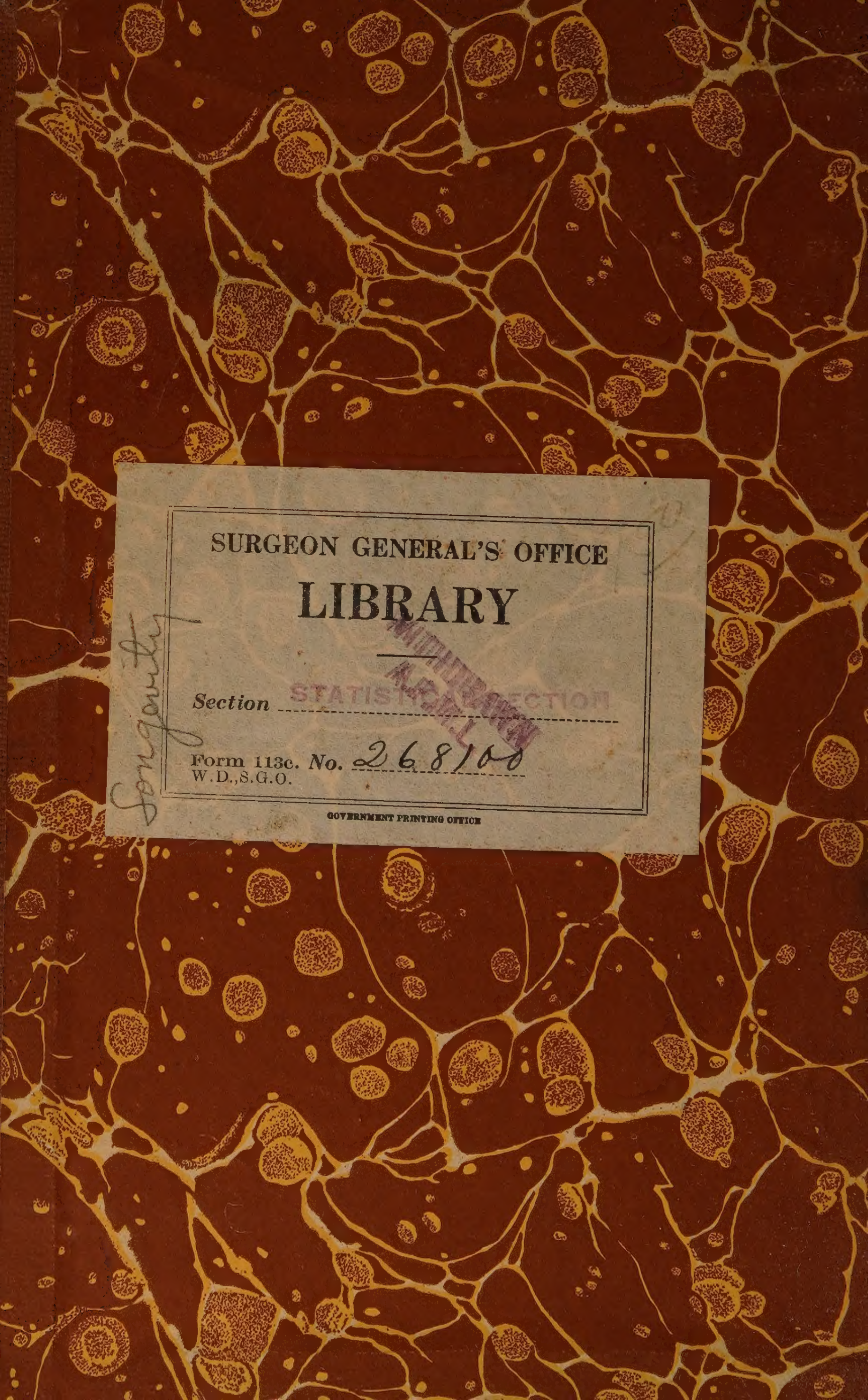

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OF

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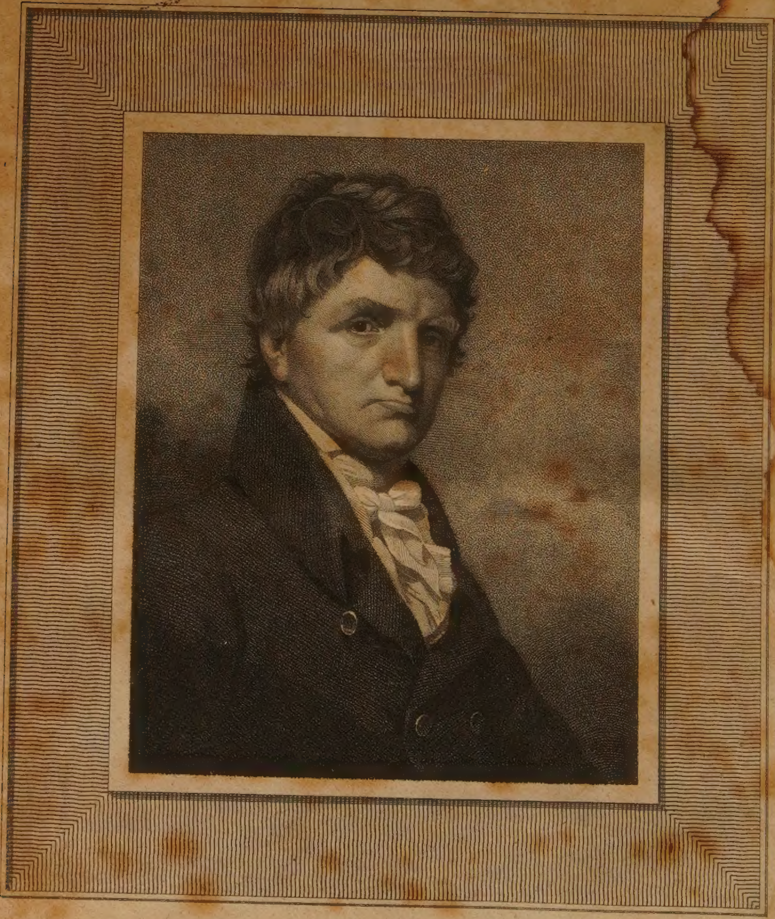

The Right Honorable

SIR JOHN SINCLAIR, BART.

Founder of the Board of Agriculture.

Engraved by Wm Bond, from a Miniature painted by A. Robertson Esqr.

Published May 1833, by Sherwood Gilbert and Piper.

THE

CODE

OF

HEALTH AND LONGEVITY;

OR,

A GENERAL VIEW

OF THE

RULES AND PRINCIPLES CALCULATED FOR THE PRESERVATION OF HEALTH,

AND THE ATTAINMENT OF LONG LIFE.

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BY THE RIGHT HONOURABLE

SIR JOHN SINCLAIR, BART.

> Neque enim ulla alia re homines propius ad Deos accedunt, quam salutem hominibus dando.
>
> CICERO, PRO LIGARIO, C. 38.

THE FIFTH EDITION.

LONDON:
PRINTED FOR SHERWOOD, GILBERT & PIPER;
AND WILLIAM TAIT, EDINBURGH.
MDCCCXXXIII.

1833

ADVERTISEMENT

TO THE

FIFTH EDITION

OF

THE CODE OF HEALTH.

I HAVE now made considerable progress in carrying on the favourite object of my life,—" *The collecting of* " *great stores of useful knowledge, not only from books,* " *but from a number of individuals acquainted with* " *any particular subject, and then, condensing the* " *important information thus obtained, within a moderate* " *compass, so as to render it generally accessible.*"—*A Code of Agriculture*, and *A Code of Health and Longevity*, with considerable improvements on the former editions, have been published ; and I propose, if health and strength will admit of it, to complete two works of a similar description, which I always had in contemplation, namely, " *A Code of Political* " *Economy*," and, " *A Code or Digest of Religion.*"

" The Code of Health" now given to the public, was undertaken, commenced, and completed, in opposition to the opinion of some most respectable friends. Among others, the celebrated Arthur Young, remonstrated with the Author on the subject, in the following energetic terms :

" I lament every thing you undertake *out of agri-*
" *culture and finance.* The efforts of such a mind,
" diligent and penetrating, keen and indefatigable,
" would, on any one subject, carry you a great length;
" but the physicians will not permit a man of fashion,
" or a farmer, to poach with impunity in their manor.
" They will damn your book if they can."

Notwithstanding this friendly remonstrance, the Author determined to persevere. That many of the faculty were rather inclined to depreciate the work, is true. But on the other hand, many able physicians have acknowledged the vast stores of information which were thus rendered accessible to them [*]; and the " Code" is now quoted, as a book of authority, in the *theses* prepared by young physicians, when they apply for university degrees. In a personal point of view also, the Author can never regret, having accumulated a mass of information, which has so essentially contributed to promote and to confirm his own health; and which has enabled him, on the verge of 80, to continue his literary pursuits.

There is no circumstance however, that more forcibly induced me to carry through so laborious an undertaking, than a letter from a celebrated Swedish author, the Baron D'Edelcrantz, in which he observes, " That the art of preserving health, and giving
" longevity to man, *forms a link in that chain of use-*
" *ful pursuits*, to which you have devoted all your
" time [†]." He adds, " My obligations for the com-

---

[*] See the Letters from Dr Matthew Baillie, Dr Beddoes, Dr Currie, and others, in Sir John Sinclair's Correspondence, vol. i. p. 297.

[†] See Code of Health, vol. ii. Appendix, No. ii. p. 7.

" munication of your interesting thoughts upon this " subject are augmented, by the advantage and information I have derived by perusing them." He concludes with stating, " I do not know, what will probably be the arithmetical extension of your life ; but " I am convinced, that in moral respect, and in longevity of action, you have already surpassed the " greatest part of your contemporaries."

The Code of Health, was at first published, *on a great scale*, in four thick octavo volumes. The object was, to make the work, a kind of library to the medical profession, on the means of preserving health. But at the desire of many friends, the last editions have been restricted to one volume, by the adoption of which plan, the sale of the publication, and consequently its utility, have been greatly augmented.

The first volume was in part translated into German by Dr Sprengel, one of the ablest physicians in Germany, who seemed rather annoyed that a foreigner, and particularly one not bred to medicine, should have written a work, which contained so much new information on his favourite pursuit. His translation was from the first edition, which was afterwards greatly improved ; but he admits, after extolling Dr Hufeland's treatise on health, " That in the work of the " Scottish Author, many subjects are considered in a " new point of view, many new and remarkable facts " are introduced, and an anxiety to attain completeness is perceived. To this may be added, an advantage peculiar to British authors, that of perspicuity, " and exemption from the language of the schools." On the whole, (he states), " That the Author has com-

" municated the most important results, which reason, " experience, and reading had taught him, regarding " the effects of external substances upon health."

A translation into French, was executed by Dr Odier, one of the ablest physicians in Switzerland, who considered the work, as likely to prove of such utility to the science of medicine, that he was induced, not only to insert a translation of it in his " *Bibliotheque* " *Britannique*," but also to publish it in a separate volume.

In regard to several English writers, who have availed themselves of the information which this work contains, the Author wishes them much success in their endeavours to benefit their fellow men. Nothing indeed can be more desirable, than to aid in removing or mitigating the various ills which flesh is heir to; and a high gratification must be felt by those, who even indirectly contribute to promote so important an object, by giving circulation and publicity to the opinions and discoveries of others, who have assiduously laboured in so good a cause.

133. George Street, }
Edinburgh. }

JOHN SINCLAIR.

HINTS,

EXPLANATORY OF THE NATURE AND OBJECTS

OF A

CODE OF POLITICAL ECONOMY,

PROPOSED TO BE UNDERTAKEN,

BY THE RIGHT HON. SIR JOHN SINCLAIR, BART.

And a General View of the Materials, on which it is intended to be founded.

A celebrated writer has justly remarked, "That "political economy is perhaps the only science of which "it may be said, that the ignorance of it, is not merely "a deprivation of good, but produces great positive "evil *."

To make the investigation of this most important subject, accessible to every individual to whom such inquiries are desirable, the Author of the Codes of Agriculture and Health, resolved also to draw up a Code of Political Economy, and to found that work, not on speculative ideas, but on the most careful inquiries into facts.

To attain this object, and as the best means of laying a foundation for its accomplishment, he prevailed on the Clergy of Scotland, to transmit to him minute accounts of the state of the population, and the other statistical circumstances of their several parishes. The first volume of that important work, was published in 1791, and the whole was completed, in 21 volumes 8vo, in about seven years and a half from the commencement of the undertaking.

---

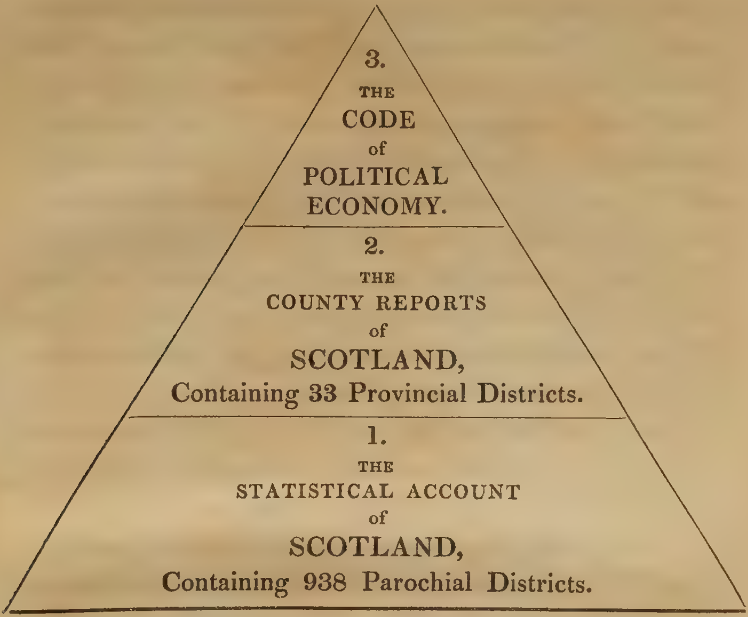
* *Malthus*, 4to edit. p. 554, note.

He next induced an institution which he had been the means of establishing, "The Board of Agriculture," to procure detailed reports, according to one regular plan, of the agricultural and political circumstances of every county in Scotland; and as these reports, which were published in 30 volumes 8vo, were in a great measure founded on the information contained in the several parochial accounts which had been previously obtained, there was every reason to depend on their accuracy.

And he now proposes, on the foundation of these county reports, to draw up "*A Code of Political Economy*," condensed into one volume 8vo.

From this explanation of the plan that has been pursued, persons, even unaccustomed to extensive literary investigation, will be enabled to appreciate the advantages to be derived from the new system the Author has adopted, "*That of making extensive inquiries, a basis for condensed information.*"

With the view of explaining more fully the nature of the plan, the Author may be permitted to place the several works already completed, and the one which he proposes to undertake, in a pyramidical shape:



3.
THE
CODE
of
POLITICAL
ECONOMY.

2.
THE
COUNTY REPORTS
of
SCOTLAND,
Containing 33 Provincial Districts.

1.
THE
STATISTICAL ACCOUNT
of
SCOTLAND,
Containing 938 Parochial Districts.

Thus the 938 Parochial Accounts are *the base* ;—the 30 volumes of County Reports, *the superstructure* ;—and the Code, or Essence of the whole, will form the cope or *apex* of this great literary pyramid.

It is evident, that a system of political economy may thus be established, on a minute and extensive investigation of local facts. Bacon justly maintains, that improvements in philosophy are best founded on accurate inquiries, and that the greatest discoveries in science and art, have arisen from minute researches. By pursuing the same method in regard to political disquisitions, by analysing the real state of mankind, and examining, with anatomical accuracy and minuteness, the internal structure of society, there is every reason to hope, that the science of government may yet derive equal, if not superior benefit.

It is with this view, that the Code of Political Economy is to be undertaken; and the Author trusts, if his mental and personal powers remain unimpaired, that notwithstanding his advanced age, he may be enabled to accomplish it. He has fortunately already collected all the materials necessary for carrying on the work; nothing therefore remains, but to add "*The cope*" to the literary pyramid he has proposed to erect, a task which his extensive experience in composition, and the attention he has so long directed to political inquiries, may *perhaps* enable him to complete.

It may however be said, that the parochial and county reports of Scotland form a very inadequate basis for a general system of political economy.

But let it be considered, that in no other country, has such a mass of useful political facts been accumulated as in Scotland; and that, from so ample store, sufficient data may be furnished, *to found* at least, "*A Code* "*of Political Economy*," which may afterwards be improved upon, as soon as other countries, have made equal exertions for collecting statistical information.

It may be proper to add, that, till the publication of the Statistical Account of Scotland, political economists had never been enabled, properly to arrange, the various classes into which a nation is necessarily divided, nor to ascertain the internal structure of those communities, whose situation and circumstances they proposed to examine, and whose progress towards political perfection they wished to regulate and promote. Hence their reasonings were better calculated to gratify the speculative philosopher, than to instruct the practical statesman. A system formed in the closet, and resting almost exclusively on theoretical principles, could rarely be acted upon, with much prospect of success, in the actual government of a country. But in the work, the publication of which the Author now contemplates, reference will be continually made to a nation, amounting to about two millions and a half, among whom the population is divided into all those various classes, into which the inhabitants of a political community must necessarily resolve themselves. And as it will not be contended, that a skilful anatomist, cannot determine the structure of the human frame, fully as well, *from the corpse of a moderate-sized person*, as from a body of larger dimensions; in the same manner, why may not the principles of POLITICAL ECONOMY be as well ascertained, from a minute and careful examination of a state consisting of two millions and a half of people, as from one of twenty millions?

In carrying on the work, every attention shall be paid to the labours of preceding authors on political economy, in particular to any statistical tables which have been drawn up, either at home or in other countries; and above all, to the interesting calculations prepared for government by Mr Marshall, regarding the statistics of England.

133. George Street,
Edinburgh.

JOHN SINCLAIR.

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INTRODUCTION.

SECT. I.

Preliminary Observations.

THE important subjects proposed here to be discussed, may be considered under three general heads:—on the means, 1. OF PRESERVING HEALTH; 2. OF PROLONGING LIFE; and, 3. OF CURING OR ALLEVIATING DISEASE.

The discussion of the third head, or the arts by which persons are relieved from the various disorders and accidents to which they are liable, does not properly fall within the limits of this work. In such cases, the aid of a skilful physician, or of a dexterous surgeon, is required. On the means however, of Preserving Health, and Prolonging Life, as being, *when properly understood*, so intimately blended together, that they can hardly be separated, it is the intention of the Author to treat in detail. The subject is of peculiar importance, for if health, be one of the greatest blessings of life, and if disease render man miserable, what can be more desirable, than to ascertain, how the advantages of the one may be preserved, and how the baneful effects of the other may be counteracted? If by prolonging our existence also, we can be of more service to mankind, from the superior knowledge, which greater experience generally furnishes, what can be more desirable, than to endeavour to preserve our health and strength, that we may be the better enabled to perform beneficial and useful actions to our fellow creatures? For, THE POWER OF DOING GOOD, IS THE CHIEF OBJECT FOR WHICH EXISTENCE IS DESIRABLE.

It is the more necessary, that the attention of the public, should be frequently directed to these most interesting subjects, because men, when living in a highly civilized or artificial state, are more apt to become unhealthy, than in a simpler state of society. In periods of civilization and luxury, it frequently happens, that men are bred up with too great indulgence; that their food is less wholesome; and that fermented liquors, or ardent spirits, are taken in destructive quantities. In great cities, the rich neglect to take regular exercise; are improperly clothed, out of caprice or from fashion; and are in some measure obliged, by the force of prevailing custom, if they wish to live in society, to follow, in regard both to food and sleep, the pernicious practice of late meals, and irregular hours. On the other hand, the poor are crowded in mean houses, live on unwholesome diet, and are employed in various unhealthy occupations, the sources of numerous complaints. As the intercourse of nations also becomes more frequent, all ranks are subject to many infectious disorders; and from an ardent desire, at all hazards of acquiring wealth, great numbers are induced, to resort to unhealthy climates, and consequently bring home with them, the seeds of destructive maladies, and future ill health.

In civilized society likewise, there is an additional source of debility and disease, in the influence which the mind has over the body. The pursuits of ambition; the contests for power; the rage for commercial speculation; the pressure of public burdens; the vexation and anxiety resulting from a disregard to economy; the distress which frequently arises from the misconduct of near relatives and friends, so frequent in luxurious and degenerate ages; to which may be added, the horrors attending those political revolutions, by which, in more recent times, the world has been afflicted;—are all circumstances, by which the mind is deeply affected; the health of individuals suffers; and man becomes afflicted with many disorders, from which he would otherwise have been exempted.

When all these particulars are considered, an apology can hardly be required from a person, who has directed his peculiar attention to such subjects, for venturing to lay before the public, the result of his inquiries regarding them.

It may next be proper briefly to explain, how it has happened, that an individual unconnected with the medical profession, has been led to direct his attention so particularly to the subjects of Health and Longevity, as to consider himself competent to the task of submitting to others, his opinions regarding branches of science, with which his pursuits in general, have no immediate connexion.

Sect. II.

Circumstances which led to the Undertaking.

Though naturally possessed of a sound constitution, untainted by any hereditary disease, yet, about the year 1797, the Author, having fallen into a weak and enervated state, found himself unequal to the task, of prosecuting useful inquiries, or of applying his mind to political pursuits, with his former zeal and energy. Even the management of his private concerns became a burden to him.

As he advanced in life, he found many of his contemporaries either declining in health, or sinking prematurely into the grave; and in carrying on a great national work *, he had occasion to observe, that even in the healthiest districts, very few of the human species, in proportion to the numbers born, attain any considerable age.

But above all, it was a matter of regret to find, that even among those who attained long life, many had their existence embittered by disease, and their life rendered burdensome, both to themselves and to others.

---

* The Statistical Account of Scotland, which gives a description of every parish in that part of the United Kingdom, with enumerations of the inhabitants in each,—their ages,—healthiness of the district, &c.

These circumstances united, naturally induced him to apply his mind to the subjects of Health and Longevity.

He began, by endeavouring to procure the re-establishment of his own health, in which, by the assistance of eminent physicians, he fortunately succeeded; insomuch, that he has already been enabled to undergo, many years of unremitting bodily and mental labour, such as few men, at an advanced period of life, could attempt; and though now verging on the 80th year of his age, he feels himself as capable as ever, of devoting a considerable portion of his time to study.

He next ventured to give hints to such of his friends as were advanced in life, or in a sickly state, on the most likely means, of securing the blessings he now enjoyed; and he had soon the satisfaction of receiving, the most grateful acknowledgments from various persons, in all ranks of life, for the benefits derived by them, from the adoption of the rules which he had recommended.

Thus confirmed in the opinion he had formed of the advantages which might accrue from such inquiries, and from attention to the information thereby obtained, he was at last induced, to think of a greater and bolder attempt,—*that of instructing his fellow creatures in general, how they could best preserve their health, and attain a comfortable old age.*

SECT. III.

Materials whence the Work has been drawn up.

THE following work is, in some degree, founded on the observation and experience of the Author; and in its progress, he proposes to detail the practices, by attention to which his own health was restored. He has likewise, ever since the study of health has peculiarly attracted his attention, taken great pains, to collect rules for the preservation of health, from a number of intelligent individuals, both by conversation and correspondence. In particular, much information was obtained, through the medium of a short Treatise on Health and Longevity, which was printed in French and English, and had several questions annexed to it, in reply to which, he fortunately procured, a variety of important communications, both from foreign and domestic correspondents. The mass of information which he has thus accumulated, the Author considers a most interesting portion of this publication. Indeed, he has no hesitation in stating, that many important facts, the result of much valuable experience, must have been lost to future ages, but for the pains he has taken, to preserve both oral and written hints, from men of observation and experience.

But above all, he has to rely on the treasures of knowledge regarding Health and Longevity, published by various authors, who have already written on these subjects, and of whose works he has made a collection, to the number of several hundred distinct treatises, which are, either directly or indirectly connected with the present inquiry. From these he has extracted, for the following pages, not only such rules as seemed to him of peculiar importance, but also the observations and facts on which they are founded *. He trusts that they will be no less useful to others, than they have been to himself; and he has no doubt, that by the observance of these rules, men, instead of living recluse, or weighing their food, measuring their drink, and the like niceties, may safely venture to engage in the various occupations of civilized or artificial society, without suffering in their health, or shortening the period of their existence.

---

* With a small alteration, Roscommon's observation may be applied to this part of the work :

"By our condensing what was wrote before,
"Invention labours less, but judgment more.

Sect. IV.

Advantages derived from an Attention to Rules connected with the subjects of Health and Longevity.

If men passed their lives in salubrious climates, were possessed of strong and vigorous frames, were descended from healthy parents, were educated in a hardy and active manner, were endued with good natural dispositions, placed in comfortable situations in life, engaged only in healthy occupations, happily connected in marriage, and kept their passions under due subjection, there would be little occasion for hygeian rules. But while some individuals enjoy only a few, and others possess hardly any one of these advantages, rules cannot be dispensed with, and such as have been successfully adopted by others, in cases nearly similar, are entitled to particular attention.

It has indeed been asserted, that those who have lived long, (for instance, Parr and Jenkins), used no peculiar arts for the preservation of their health; consequently, that the duration of life, has no dependence on manners or customs, or the qualities of particular food *.

This, however, is an error of no common magnitude. Peasants, labourers, and other hard-working people, more especially those whose occupations require them to be much in the open air, may be considered as following a regulated system of moderation, and hence they enjoy that higher degree of health, which prevails among them and their families. Rules likewise, many of these patriarchs did observe; and those which it is said old Parr recommended, are remarkable for good sense. His advice was, " Keep your head cool by temper-" ance, your feet warm by exercise; rise early, and go soon " to bed; and if you are inclined to get fat, *keep your eyes open*,

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* Buffon, vol. ii. p. 480.

" *and your mouth shut* [*]." In other words, take a moderate quantity of sleep, and be abstemious in diet.

It has also been contended, that those who pay particular attention to their health, and who are always talking and thinking of it, never attain longevity; but on the contrary, lead a miserable life, subject to perpetual terror and uneasiness, without deriving any advantage from their care and anxiety. This assertion however, has been rashly made, and is not founded in fact. Indeed, many of those to whom it is applied, were in such a state of weakness and debility, that they would have died early, had it not been for attention to their health.

To those who entertain any doubts of the advantages to be derived from the observance of any particular system, I would recommend the precepts and the practice of Plutarch. His rules for the preservation of health are excellent [†]; and, by observing them, he maintained, to a very advanced age, both his bodily strength, and his mental faculties, unimpaired.

The celebrated Galen, is a still stronger proof of the advantages of a regular plan. He was born with an infirm constitution, and afflicted, in his youth, with many severe illnesses; but having arrived at the twenty-eighth year of his age, and finding that there were sure rules for preserving health, he observed them so carefully, that he never laboured under any distemper from that time, except an occasional slight feverish complaint, arising from the fatigue to which, while attending the sick, he was necessarily exposed [‡]. By these means, he reached the great age of one hundred and forty years. His advice to the readers of his Treatise on Health, cannot be too strongly recommended. "I beseech all per-"sons, (he said), who shall read this work, not to degrade "themselves to a level with the brutes, or the rabble, by "gratifying their sloth, or by eating and drinking promiscu-"ously, whatever pleases their palates, or by indulging their "appetites of every kind. But whether they understand "physic or not, let them consult their reason, and observe "what agrees, and what does not agree with them, that, like "wise men, they may adhere to the use of such things as con-"duce to their health, and forbear every thing which, by their "own experience, they find to do them hurt; *and let them be "assured, that, by a diligent observation and practice of this rule, "they may enjoy a good share of health, and seldom stand in "need of physic or physicians.*"

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[*] Others say, that the latter part of this maxim was, " Never eat till you are hungry; nor drink but when nature requires it." James Donald, an old man, who lately died in Dumbartonshire, aged at least 93, and some imagine above 100, informed the Author, that he made it a rule to walk at least two miles every day, either out of doors, in good weather, or within, in bad.

[†] His treatise upon this subject is printed entire in the Code of Longevity, second edition, vol. ii. p. 105; and an abstract of his system will be here found, in Part II. Chapter V. on Customs.

[‡] De Sanit. Tuend. lib. 5, c. 2. See also Mackenzie on Health, p. 167. It appears from Volney's account of the self-denial practised by the American Indians, with a view to the preservation of vigour, that they agree in that respect

Cornaro is another memorable example of the efficacy of rules. Reduced, when he had entered the fortieth year of his age, to the very gates of death, and in a manner given up by his physicians, nothing but a regular system, strictly adhered to, could have saved him. His rules, in the extreme to which he carried them, are certainly but little calculated for general adoption. They have established however, some important truths; in particular, that little sustenance, indeed so small a quantity as twelve ounces of solid, and sixteen ounces of liquid food, *per* day, is sufficient to preserve the health and existence of an old man, living in a retired and quiet manner, and not obliged to take much fatigue or exercise; and that by great care, a tendency to passion, which is often so fatal to aged people, may be subdued.

A respectable prelate, Cardinal de Salis, Archbishop of Seville, who died *anno* 1785, at the advanced age of 110 years,

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with the ancient Germans, as represented by Tacitus; and that even savages have their rules.

It is justly observed, that "*a life of firm health, cannot reasonably be expected, "unless it be secured by attention or forbearance.*"—Manual of Health, p. 12.

is another instance of the advantage to be derived from rules. When asked what system he observed, he used to tell his friends, "By being old when I was young, I find myself "young now I am old [*]. I led a sober and studious, but not "a lazy or sedentary life. My diet was sparing, though delicate; my liquors, the best wines of Xerez and La Mancha, "of which I never exceeded a pint at any meal, except in "cold weather, when I allowed myself a third more. I rode "or walked every day, except in rainy weather, when I exercised, within doors, for a couple of hours. So far I took "care of the body; and, as to the mind, I endeavoured to "preserve it in due temper, by a scrupulous obedience to the "divine commands. By these innocent means, I have arrived at the age of a patriarch, with less injury to my health "and constitution, than many experience at forty [†]."

It was likewise by an attention to rules, in particular to strict temperance, regular exercise, and judicious habits, that the celebrated John Wesley, notwithstanding a delicate constitution, protracted his existence to nearly ninety years; and was enabled, during that long period, to go through much personal and mental labour.

These, and other facts of a similar nature which might be adduced, are sufficient proofs, of the efficacy of rules, and how much they merit attention.

It may be proper here to observe, that the attainment of longevity, if accompanied with good health, is not only an important consideration to the individual, but also to the community to which he belongs. If the mind be not oppressed by care, nor the body weakened by sickness, our declining years, often prove the happiest period of our existence. The fever of the passions has then abated; and the anxious and laborious pursuits of ambition and avarice, are no longer interesting. Preparing to quit these sublunary scenes, THE HEALTHY VETERAN places his delight,—in mental, rather than in corporeal exertions;—in performing generous actions to all around him;—in benefiting others by the knowledge and experience he has acquired;—in promoting social intercourse, and rational amusement;—and in studiously endeavouring, to leave a character behind him, which shall be afterwards remembered with affection and respect *.

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[*] How ably has Shakspeare described the healthy old man!

Though I look old, yet I am strong and lusty,
For in my youth I never did apply
Hot and rebellious liquors in my blood;
Nor did I, with unbashful forehead, woo,
The means of weakness and debility;
Therefore my age is as a lusty winter,
Frosty, but kindly.

As You like It, Act II. Scene 3.

[†] See Easton on Longevity, p. 203.

Sect. V.

Why attention to Health is so often ineffectual.

1. People seldom attend to their health till it be too late †. They scarcely ever think of it till it be seriously impaired. When they become feeble, then they wish to get strong; when they are diseased, they wish to become healthy. But when the constitution is broken, and the frame is hastening to dissolution, when death knocks at the portal, is the renovation of health to be looked for?—No! The foundation ought to be laid early. The plan to be adopted, should begin in youth, and ought afterwards to be most rigidly persevered in. The happy effects of the system adopted, may then be expect-

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* See *Cicero de Senectute*, on the Pleasures of Old Age, so happily exemplified by Cornaro.

† An ingenious friend of mine has ably described, how difficult it is to prevail on the world in general, to attend to health. The epicure and glutton will not forego his turtle, venison, and high-seasoned dishes, nor the drunkard his wine, gin and brandy. The lazy will not become active, nor the sloven clean. The tradesman, manufacturer, and shopkeeper, cannot neglect his business for air or exercise; and if it is the fashion to go half naked, nothing will induce men or women to clothe themselves properly. In short, *original sin* must be entirely done away, and all its consequent vices and passions, before mankind will pay proper attention to the preservation of health and longevity.

ed in a healthy and comfortable old age. If we are to live wisely, says a great philosopher, (Adam Ferguson), for the sake of longevity, our system is doubly fortunate; the end is good, and the means are better. Even if we miss the end, we are happy in using the means.

2. Much more might be expected from attending to this subject, even at a late period of life, if the means of information were accessible. But though so many volumes have been written upon it, and several of them with great ability, few persons can either purchase or peruse them, in order to discover what rules are applicable to their own particular case. A collection however, being here made, of the facts and observations, which are the *most essential* for the preservation of health, the Author hopes, that it will now be in the power of every considerate person to ascertain, what rules are best suited to his own particular situation, and to adopt those, which are likely to be most efficacious.

3. The means of preserving health, and attaining longevity, have not hitherto been made the particular study of the physician; nor are they taught at our schools or universities, as so important a branch of science ought to be. An attention to health, which ought to be a primary object in the education of youth, is seldom considered as even a secondary one; while trifling accomplishments, of little importance in the pursuits of life, too generally engross the attention of father and son, master and scholar.

4. When people, without having any confirmed disease, fall into a debilitated state, they are too apt, either to rely on their own skill *, or to fly for relief to ignorant and presump-

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* We learn from Paulus Jovius, that Alexander (Jerome), a celebrated Cardinal, who died *anno* 1542, ruined his health by the over-care he took of it, being a very bad physician to himself, and making use of too many unnecessary medicines. "He enjoyed," says Jovius, "the purple five years, and would un- "doubtedly have arrived at a good old age, if he had not, through too great soli- "citude to preserve his health, proved a mad and unsuccessful physician to him- "self, and corrupted his entrails by improper medicines."—*Paul Jovius, Eleg.* c. 98, p. 231. See Bayle's Dict. *voce* Alexander (Jerome).

tuous quacks, instead of trusting to the counsels of men of reputation and of experience in the medical profession. What can be more preposterous! Can any thing be expected from such folly, excepting the prolongation of ill health, or a speedy dissolution? If the ablest physicians find it difficult to relieve their patients, when they see them daily, and can watch over the whole progress of the disease, how can these ignorant and bold pretenders, cure a variety of disorders, by the same medicine, and with the same dose, in the cases of thousands of individuals, whom, in most instances, they have never seen, and whose ages, constitutions, complaints, situations in life, and other circumstances, are so widely different from each other?

Some who are incapable of exerting self-denial, represent hygeian rules as troublesome; and account all persons as miserable, who live according to any regular system, or attend to such directions as have been recommended to them for the preservation of their health. But let it be remembered, that, by habit, the observance of rules becomes quite easy and familiar, and is attended with no trouble or inconvenience; nay there is a pleasure, arising from the occupation which it furnishes to the mind, more especially in cases of debility, besides the comfort which the individual feels, and the advantages which he gains, when his attention is successful. These soon counterbalance any restraint which the observance of rules occasions.

Such, indeed, are the advantages of rules, that though no means can possibly be suggested, by which, considering the circumstances under which man is placed, any great extension of human life can be obtained, yet if any person, whose health is not materially injured, will study the doctrines of health and longevity, and will apply, *before it is too late*, the facts and observations which he may thus acquire, to his own particular case, occasionally calling in the assistance of an intelligent medical friend, when any important alteration takes place in his constitution or bodily functions, he will generally add, from ten to twenty, or even thirty years, TO HIS COMFORTABLE EXISTENCE.

But though a proper attention to health is certainly advisable, anxiety about this, like every thing else, may be carried to an extreme; and, as a recent author has justly observed, a fancied want of health, and a too solicitous attention to personal welfare, is one of the refinements of a luxurious age, when, by the diffusion of wealth, all apprehensions respecting the immediate means of subsistence, are removed from a considerable part of the community *. Hence the multitudes of hypochondriac and nervous people, who flock to all the different watering places in the kingdom, whose complaints are commonly groundless, and who, by wishing to cure imaginary illness, often make themselves actually sick. To their attention, the epitaph engraved on the tombstone of an Italian noble, who fell a sacrifice to this imprudence, may be recommended: *Stavo ben—Ma per—Star meglio—Sto qui;*—"I was well,—"would be better,—Here I am."

We shall now proceed to explain the plan of the proposed undertaking.

SECT. VI.

Plan of the Work.

THE medical authors who have hitherto written on health, have commonly arranged their observations under six general heads: 1. Air; 2. Diet; 3. Motion and Rest; 4. Sleeping and Watching; 5. Retention and Excretion; and, 6. The Passions of the Mind. To these they have given the singular name of the six *non-naturals;* a term which originated in the jargon of the schools †. But as such a classification of the doctrines of Health and Longevity, is in many respects defective and exceptionable, and as, by adhering to it, many important particulars would be totally omitted, it is not proposed to adopt it upon the present occasion.

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* Buchan's Practical Treatise on Sea-Bathing, Preface, p. 5. The care and anxiety thus produced, are of themselves a disease, which counteracts every plan that can be recommended to their attention.

† It was first mentioned by Galen, who divides things relating to the human body into three classes: Things which are *natural* to it; things which are *non-natural;* and things which are *extra-natural;* (Class 7, lib. de Occul. Partic.

The rules calculated for the preservation of health, and the attainment of longevity, may be enumerated under two heads: 1. Those which relate to objects *essential* for man in every situation, *even in a state of nature;* as,

1. Air.
2. Liquid Food.
3. Solid Food.
4. Digestion.
5. Exercise.
6. Sleep, and,
7. The Government of the Passions.

These will be discussed in Part 1.

Part II. will comprehend articles *not so essential*, but which require much attention, *more especially from men in a state of civilization and refinement.* These are,

1. Clothing.
2. Habitation.
3. Change of Residence.
4. Customs and Habits which influence Health.
5. Bathing.
6. The means of preventing, and remedying accidents, or common disorders; and,
7. Articles of a miscellaneous nature; as, 1. Rank in life; 2. Education; 3. Professional occupation; 4. Connubial connexion; and 5. Amusements.

It is here proper to observe, that all the rules respecting these several articles, are not applicable to every situation, but must vary according to climate, constitution, temperament, the progress of life, &c.; *and that the object of this publication is, merely to give information regarding the general system which may be pursued, leaving it to each individual, to apply the particular rules therein recommended, according to times and circumstances.*

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tertia, c. 2). From this fantastical distinction, the epithet non-natural first arose. See Mackenzie, in his History of Health, Introd. p. 4. Some authors on health have likewise gone into the discussion of *non-necessaries* (see Strother's Essay on Sickness and Health, p. 445), in which they include clothing, and professions.

CHAPTER I.

OF AIR.

PRELIMINARY OBSERVATIONS.

THE air is that thin and subtile fluid by which our globe is surrounded. The advantages derived by the human species from this substance, can hardly be sufficiently appreciated. Without atmospheric air, constituted as it is, man unquestionably could not enjoy any of the comforts of life, or even continue in existence. Were it not *transparent*, he could not see :—Were it not *elastic*, he could not hear :—Were it not *easily divisible*, he could not move from one place to another : —Were it not *perpetually in motion*, it would become corrupt and poisonous, navigation could not be carried on, and many useful machines would have remained unknown :—Were it not *heavier* in the lower regions which men inhabit, than on the tops of the loftiest mountains, the finer vessels in the lungs would swell, and in many cases would be apt to burst by expansion :—And were it not that, by *respiration*, or breathing, we imbibe the salutary and vivifying principles with which the atmosphere abounds, the human race would become extinct *.

This most important substance is composed of two gases, one called *oxygen* or vital air, the constant absorption of which is essential, not only to the health, but to the existence of man and other animals : The other substance is called *nitrogen* or *azote*, which, after being inhaled, seems to be wholly, or in a great measure expelled in the process of respiration. The proportion of these two gases in the atmosphere is, one volume or atom of oxygen, to four volumes of nitrogen.

In addition to these two constituent gases, air is likewise found to contain a portion of another substance, of a deleterious nature, called *carbonic acid gas*, or fixed air, which varies from

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* Cicero, de Nat. Deorum, lib. 2, c. 33, very happily expresses several of these advantages in the following words: " *Ipse aër nobiscum videt, nobiscum* " *audit, nobiscum sonat, nihil enim eorum, sine eo, fieri potest.*" Haller, Elem. Physiol. tom. ii. p. 155, has justly remarked, " *Aëris dotes nondum satis notæ* " *sunt.*"

1.100th part to 1.2000th part of any given quantity. There are likewise generally present, aqueous vapour, and various volatile substances raised from the surface of the earth. Under particular circumstances, the air becomes tainted with contagious effluvia.

Without entering into the various interesting facts connected with the constitution of the atmosphere, which the rapidly advancing science of chemistry has developed, and which will be found in books on that important science, we shall proceed to consider the subject of air, in reference to the peculiar objects of the present work, under the following heads:

I. The uses of respiration; II. The importance of pure air; III. The different qualities of air, and their effects on health; and, IV. Practical rules, connected with the nature, and peculiar qualities of the atmosphere.

I. *The Uses of Respiration.*

It is well known, that all animals possessing a double circulation, or, in other words, the whole of whose blood passes, in constant succession, through the lungs, as well as through the heart, depend, for the continuance of their existence, on an uninterrupted supply of atmospheric air. To man, from the peculiar nature of his organization, this constant supply is most essential: for a few minutes of suspended respiration, will render him a lifeless corpse. The breathing of atmospheric air therefore, is essential for the preservation of life, and must go on as regularly during sleep, as when we are awake.

The uses of respiration may be summed up as follows: It restores the florid colour, and apparently the vital properties of the blood;—it is a source of animal temperature,—and it is the means by which some of the useless portions of the system are got rid of*.

II. *Importance of Pure Air.*

When it is considered, that the air we breathe, is not merely drawn into the lungs, but is absorbed and circulated through the whole body, the wonder is, not that pure air is essential for the preservation of health, but that we should be able to exist, even for one day, amidst the numerous impurities with which, in our great cities, the atmosphere is impregnated. The effects which may be produced, not only on the health, but on life itself, by the inhalation of injurious air, are best illustrated by extreme cases. We know that suffocation by choke-damp, is as instantaneously, and almost as certainly fatal, as a gun-shot through the heart; and it is equally certain, that crowded jails or hospitals, will produce an atmosphere, capable of generating destructive fevers. Of this a most memorable example has been often referred to, namely, "*The Black Assize*," when not only the inmates of the jail suffered, but when those in the open court were infected by the malaria brought into it by the prisoners. The same, or worse effects, are unhappily of too frequent occurrence, among the unfortunate passengers in slave-ships. But perhaps the most convincing proof, of the indispensable necessity of procuring a regular supply of fresh air, is to be found, in the details of the horrors of the Black Hole of Calcutta, where, by twelve hours' confinement in an over-crowded apartment, out of 146 individuals, only 23 survived.

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* Some account of the physiology of respiration, and of the weight of the atmosphere, will be found in the Appendix, Nos. I. and II.

It has been stated, that the atmosphere, in its usual state, contains about 1.100th part of carbonic acid gas; and it has been found, that an atmosphere, containing 10 *per cent.* of this deleterious substance, is no longer fit for the purposes of respiration. It must therefore be evident, that in all situations, in which this gas has a tendency to saturate the atmosphere, the air must become proportionably noxious. We should consider a man as having lost his senses, who should shut himself up in an atmosphere mixed with choke-damp, however much diluted; or we should scarcely think a young lady fit to be left to her own guidance, who might choose to sleep with a pan of burning charcoal in her bed-room. Yet mothers will often fearlessly expose their daughters to atmospheres hardly less fatal.

It is calculated, that each person consumes about five cubic feet of air in an hour, or, in other words, renders such a quantity of air unfit for respiration. If an hundred persons therefore, were confined in a room, 30 feet long, 25 broad, and 30 feet high, the whole air in that apartment, consisting of 22,500 cubic feet, unless renewed, would be rendered noxious in about four hours and a half, and effects similar to those which took place in the Black Hole of Calcutta would result *.

The celebrated Lavoisier found, at a theatrical entertainment, that before the play began, the air contained the following proportion of its usual component parts:

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* That great philosopher Hales ascertained, that in one minute, the breath of a man renders a gallon of air, unfit for respiration; so that a hogshead, or 63 gallons of pure air, would hardly supply a human creature for an hour.

Oxygen,	27
Azote (Nitrogen),	73
	100

but that, towards the conclusion of the piece, the air of the theatre was as follows:

Oxygen,	21
Nitrogen,	76½
Carbonic acid or fixed air,	2½
	100

Hence, while the oxygen or vital air was diminished in the proportion of from 27 to 21, or nearly one-fourth, the air was rendered still less fit for respiration, from being impregnated with a considerable quantity of carbonic acid [*].

Is it then to be wondered at, that routs, assemblies, and theatres, should, with their many other causes of injury to health, so often plant the seeds of destruction, in the bosoms of the most delicate and interesting portion of our species [†]?

Although the natural tendency of every gas, to incorporate itself with the surrounding gases, generally prevents carbonic acid gas from accumulating on the surface of the earth, still, when it is generated, for example, by the process of fermentation, in a confined place, as at the bottom of an old well, a mine, or a brewing pot, its weight prevents its ascending into the atmosphere. Hence, the accidents from choke-damp. In some situations, as in the Grotto dell Cano, this destructive gas exhales from the earth.

It may be proper to add, that the poison of malaria, is of the most destructive nature, and that no attempt has as yet been successful, in discovering the remote cause of intermittent fever, a disease, which very generally appears to be connected with a marshy country, but which has, nevertheless, been found to prevail, where there was neither swamp nor jungle to account for it.

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[*] Among the places of public resort, there is none where a corrupted atmosphere is more frequently to be met with, than the British House of Commons. The room where that great council meets, was perhaps large enough for the numbers which constituted that assembly, whilst it consisted of 513 members; but since the additions to the number, by the unions with Scotland and Ireland, the same apartment, notwithstanding some attempts to enlarge it, is much too confined, to hold the representatives of the united empire, far less the crowds, who wish to be present, when any interesting debate is to take place. It would be folly to think, of attempting to render the present room, capable of containing the number of which the house now consists. The only remedy is, the erection of a new edifice, worthy the representation of so great an empire.

[†] Routs and parties, where there is no dancing, *which would circulate the air*, and in which the object is, to fill the room to over-crowding, may be regarded, in a country in which it is necessary to keep out as much of the external air as possible, as pre-eminently injurious to the health of the young and the delicate. Such parties generally afford a choice of evils, suffocation by choke-damp, or a mortal cold in the chest, from open windows.

III. *Of the Qualities of the Air, and their Effects on Health.*

Under this head are to be considered, the qualities of the air; 1. With reference to its temperature; 2. Its moisture; 3. Its weight; 4. The effects which the subjacent surface of the earth produces on it; and, 5. Its different conditions during day and night.

1. *Temperature of air.*—This naturally divides itself into hot and cold air, as connected with our sensations, rather than the standard heat of the body. The effects of hot air, on warm-blooded animals, are principally influenced by this, that the quantity of perspiration, sensible and insensible, is, in a great measure regulated, by the degree of heat applied to the body. It is supposed, that in England, on an average of the whole year, human perspiration scarcely equals all the other excretions, though in summer it is nearly double of what it is in winter; whereas in Padua, during the whole year, the perspiration is supposed to be, to the other excretions, as five to three, and in tropical climates, the proportion will of course be still greater, especially in the natives of Europe.

Though the human body can bear considerable variations of temperature, yet the atmospheric heat, most congenial to the human frame, is from 50 to 70 of Fahrenheit. This temperature, has generally prevailed, in the countries most famed for intellectual exertion, and for strength both of body and mind. When that proportion is much exceeded, the fibres are apparently relaxed, particularly in the young and growing, and all are liable to suffer from lassitude and debility. It is believed, that man cannot live long, in an air very much hotter than his own body, that is, in a temperature much above 98° of Fahrenheit's thermometer. Still however, it is extraordinary, how much the human frame will endure, even in this respect; for not to lay stress on those fool-hardy experiments, in which individuals have cooked and eaten beef-steaks in ovens, we may refer, to the almost incredible fatigue our countrymen so frequently undergo, in our inter-tropical possessions, in the performance of their duties. To an inhabitant of this country, it is scarcely conceivable, how Europeans in India can, not only exist, but go through the most harassing and fatiguing business, in an atmosphere, the temperature of which, even in the shade, is 20° above the standard heat of their own bodies.

When it is considered, that so many of our countrymen, are exposed to a climate, which, for a third part at least of every year, is hotter than their own bodies, and since it is certain that a tendency to a disease, by which an individual has been afflicted, may be transmitted to his posterity, we need not be surprised, that inter-tropical diseases, are daily becoming more common in this country.

Were man incapable of clothing himself, the cold climates, which at present may be considered the seat of civilization, and the fountain-head of science, would be uninhabitable by the human species. In a state of nature therefore, man is an inhabitant of the hotter climates. Still, however, the uncomfortable effects of excessive heat are greater, after a certain stage in civilization, than those of severe cold, simply because man is enabled, by his ingenuity, to protect himself from the latter, while he has few means, of bringing down a high temperature, to a heat congenial to his own system. Our being enabled then, to inhabit every portion of the globe, is not to be ascribed to the nature of our bodily conformation alone, but is the consequence also of our mental endowments.

The effect of cold on the system, may be considered as tonic, for it seems to brace the fibres of the body, and to become a stimulus to the circulating fluids. Its effects may be expressed by the term re-action, and may be thus stated: cold much below the temperature of the human body, if unresisted, would destroy life; but as it is a law of the animal economy, that whatever is likely to prove injurious to existence must be resisted, the application of cold excites the energies of the system, so that the formation of animal heat is increased, and cold is counteracted. Cold air therefore, so long as the powers of the human frame can resist its effects, is rather beneficial than injurious; whereas, when it is either too great for this protective power of the system, or when the surface is too long exposed to it, either the whole body, or the part exposed, perishes.

But while cold stimulates the skin, it suspends its exhaling function, and consequently, a greater burden is thrown upon the internal emunctories, particularly on the lungs and air passages, while these parts have their own share of duty to perform, in resisting the injurious effects of cold. We may thus, in part at least, account, for the liability of mankind to catarrhal affections during cold weather.

2. *Moist Air.*—It has been well observed, that a little more

or less of moisture in the air, can have but little influence on man, whose body is composed in a great degree of fluids; whose blood and juices are so watery; and who can swallow quantities of water, and weak liquors, daily, without inconvenience. Air therefore, though moderately moist, can have no injurious effects on the constitution, but if saturated with moisture, it becomes unwholesome *. Moist weather however, particularly when accompanied by cold, is often unfavourable to health, as is frequently, and fatally experienced by delicate people, during the fogs of London and Paris. When the air is impregnated with vapours from putrid marshes, it is pernicious, not so much from its humidity, as from an unknown miasm.

When the air is deprived of moisture, it seems to imbibe animal and vegetable effluvia, so as sometimes to contain, what may have an injurious influence on the body. A dry atmosphere however, if not too warm, is both agreeable and healthy; but when a parching air is accompanied with great heat, the most fatal consequences, both to animals and vegetables result. Thus, we have the *Sirocco* of Italy, the *Campsin* of Egypt, and the *Simoom* of Arabia. Even in England it has been found, that the driest seasons are more unhealthy, than those in which extreme wetness prevails. In fact rain *washes* the atmosphere, for the air is never so pure, nor so clear of all noxious matters, as after a heavy shower.

3. *Weight of the Atmosphere.*—Air of a certain weight and density, is necessary for the continuance of life, and, accordingly, it is found impossible to ascend into the atmosphere beyond a certain height. Persons, after ascending mountains to the height of about 15,000 feet, are seized with difficulty of respiration, suffer from lassitude, and headach, and are sometimes even so violently affected, as to vomit blood, and discharge it from the nose and mouth. This of course arises, from the expansion of the blood, and rupture of the vessels, consequent to the removal of the usual compression afforded by the atmosphere. When fermented liquors are carried in bottles to that height, their contents being rarefied, the bottles are burst.

But though air, when extremely rarefied, is prejudicial, yet, in moderation, it may be of use, particularly in hot climates. Thus the lower portion of the Himalaya mountains in Bengal, and the Neelgherry mountains in the Madras territory, which are from 8000 to 10,000 feet above the level of the sea, are found not only inhabitable, but of the greatest service to invalids. The British Government of India accordingly, are taking advantage of those salubrious mountainous districts, for the establishment of hospitals, and sick stations *. The Himalaya mountains in Asia, have, within the last few years, been ascertained to be the highest in the world, one of the peaks being calculated to be 27,000 feet above the level of the sea.

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* Hippocrates of old, observed, that the Phasians were tall, soft, bloated and pale, on account of the excessive moisture of the air they breathed; their country being marshy, hot, watery, woody, and subject to violent showers, at all seasons.

When air is in some measure compressed, or rather heavy, if it be dry, it is not unfavourable to life. Those who breathe such air, are strong and healthy, and capable of bearing much fatigue and labour, though they are not so light and active as the mountaineers who live in a thinner atmosphere. It may be proper to add, that from authentic experiments, it appears, that animals live longer, when breathing a like quantity of compressed, than of uncompressed air, a circumstance which perhaps might be usefully applied to medical purposes.

4. *Influence of the subjacent surfaces of the Earth on the Atmosphere.*—That the air we breathe is influenced by locality, is perhaps made most evident, by the effects of change of climate on invalids, on whom travelling a very short distance, not unfrequently produces the greatest benefits. The natural subdivision of this head is, into inland and sea air. In the interior parts of a country, the air is probably impregnated, with exhalations from the soil, and from the vegetable productions †. Much, also, must depend, upon the state of cultivation.

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* The influence of the height of mountains on temperature, is an exceedingly interesting subject, but as it would embrace the discussion of vegetation, with reference to height above the level of the sea, we cannot enter on it here. The Neelgherry mountains are situated in one of the hottest districts in the peninsula of India, in about 11° of north latitude, yet the thermometer in the higher table land seldom exceeds 70°, and there is a difference of 30° between it and the Coimbatore country, 6000 feet nearer the level of the sea.

† Dr C. Harrison of Horncastle found, that the air of the fens or marshes of Lincolnshire, is not favourable to the production of pulmonary consumption. Though that scourge of this island is reported to destroy annually such numbers of its inhabitants, yet in the fenny districts, it is rarely to be met with; whereas, in the high-lying divisions of the county, *(the wolds)*, where the air is less moist and bland, that disorder is much more frequent. He farther found, that a removal from the high to the lower fenny part of the county, had repeatedly and uniformly the best effects. Indeed, a spitting of blood may, in some instances, be taken as an indication, that the situation of the sufferer's residence is too high, and the air too light. The proper plan to pursue therefore, is, to fly to a flat or deep country, where the air is heavy.

Strother, in his Essays on Sickness and Health, p. 26, contends, that the midland counties in England are the most healthy, and less subject to a variety

Even countries, which, in a wild state were found unwholesome, when cleared of wood, and brought under cultivation, have become perfectly healthy. It is at the same time to be observed, that the central countries of great continents are colder, especially in winter, than those that have the sea air. Moscow, in the same latitude with Edinburgh, is much colder during the winter months, while it is warmer in summer.

The air at sea is, in various respects, different from that of the inland parts of the country. 1. Sea air, in consequence of evaporation, is more constantly humid. . 2. The air at sea is more frequently agitated, and storms are more violent, and continue longer than on land *. 3. In the same country, the air is found of very different temperatures, in regard to heat and cold; but the sea being of a more equable temperature, maritime air is less exposed to sudden variations, so that those exposed to a sea life, are less liable to colds and other catarrhal affections, than the inhabitants of situations, where the temperature of the atmosphere has no such cause to equalize it. 4. The air at sea scarcely ever stagnates, being continually agitated by the winds and currents, or by the regular flux and reflux of the tides. 5. Sea air is not so liable as land air, to be deteriorated by the putrefaction of animal and vegetable substances, the respiration of animals, and the products of combustion.

5. *The different Qualities of the Air during Day and Night.*—The presence of light, seems to have a most important influence on vegetable productions; thus, the leaves of plants exposed to the solar rays, while they absorb the carbonic acid of the atmosphere, give off an equal volume of oxygen. In the dark, on the contrary, plants absorb oxygen, and disengage carbonic acid gas. These facts, of themselves, are sufficient, to account for the different effects of night and day air on the human system. So evident has this been rendered, that in tropical countries it is a very common opinion, that to sleep under particular trees, is certain death; and experience, in every

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of weather. He observes, that when the easterly or westerly winds give rains in abundance to the coast, yet the mid-way, between sea and sea, has then been calm and dry; the clouds brought from either sea, drop before they come mid-way. The accounts which are given of the air of Cheltenham, seem to justify these observations.

* In the British Encyclopædia, *voce* Aërology, p. 155, it is stated, that Dr Dobson of Liverpool found sea-water to contain air, superior in quality to that of the atmosphere. Arbuthnot contends, that were it not for constant winds, which blow off the coat of vapours which invest the ocean, sea-air would be intolerable to human bodies.—*On Air*, p. 70.

country teaches us, that, with a view to health, the less exposure there is to night air the better.

Such are the various conditions of atmospheric air, and the general qualities of each. It is proper however, to observe, that, by custom, man may be reconciled to different sorts of air; and that there is no animal, so capable as man, of being made to agree with so many various climates *. Generally speaking, the animals of warm countries cannot exist in cold. African animals can hardly endure the coldness of the open air of England, which is too warm for the rein-deer; yet man can live, not only under the line, but also far within the polar circles. The difference between mankind and other animals arises, from man's being enabled, by many artificial contrivances, to bear the extremes of heat and cold. Brutes, left to their own choice, as far as they can attain the object by locomotion, choose the countries and climates most adapted to their constitutions; and so perhaps would men also, if they were not endued with the faculty of invention, and of transmitting the inventions they have discovered, to their posterity.

IV.—*Practical Rules with reference to the Nature and Qualities of Air.*

These rules may be considered as connected, I. With the nature and qualities of the soil; II. With the climate and seasons; III. With the age and condition of the individual; and, IV. With his place of residence.

I. *Rules connected with the Nature and Qualities of the Soil.*

It has been justly remarked, that we are not yet possessed, of a complete test of the salubrity of air; and, till this can be obtained, our only guide must be experience. There are some indications however, which prove the healthiness of a country; as, 1. The complexion of the inhabitants, if clear and florid, may be regarded as a sign of wholesome air; and, 2. Where, in proportion to the number of the inhabitants, many reach an advanced age, the air is to be accounted healthy †. On

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* The effects of custom, in regard to air, cannot be more strongly exemplified than by this singular circumstance, that a mouse or a duck, accustomed to an exhausted receiver, can endure the privation of air better, than when first subjected to this cruel experiment, so much are all animals the creatures of custom.—*Arbuthnot on Air*, p. 97; *Philos. Transactions*, abridged by Louth, p. 229, 230.

† Shakespear gives another mark of pure air—

"This guest of summer,
The temple-haunting martlet, does approve,

the other hand, fevers, glandular swellings, pulmonary consumption, and premature deaths, are melancholy indications of insalubrity.

It seems to be ascertained, that low-lying marshy situations are unhealthy, while high airy places, where there is no tendency to the collection of stagnant water, and which are not exposed to blighting winds, are generally found to be salubrious.

Here it may be proper to advert to an old method of improving health, that of inhaling the vapour of fresh turned up earth, which is supposed to have something strengthening in it, and which is certainly refreshing. Lord Bacon was[*] acquainted with a very old man, who, every morning, as soon as he awoke, caused a piece of earth to be held before his nose, that he might inhale the vapour. He recommends therefore, the smell of fresh earth, as it may be obtained by following the plough, or digging up the earth, particularly in the spring. Hufeland [†] has lately recommended these means to consumptive persons, who may inhale the vapour of earth, either in the open air, or in an apartment. Exhalations from fresh turned earth therefore, in situations otherwise healthy, if combined with exercise, would, there can be no doubt, in many cases prove beneficial to health.

II. *Rules connected with the Climate and Season.*

It is contended by some authors, that an uniformity of climate is desirable, as being favourable to health and long life [‡]. But Hippocrates affirms, that such uniformity is not to be wished for. It is the equality of the temperature of the seasons, which renders the inhabitants of tropical countries, indolent and submissive to masters, and unwilling to quit their ease or their families, or to subject themselves to labour or hardships; whereas in countries, where there are great vicissitudes of heat and cold, and where, even the necessaries of life require much labour for their production, both the mind and the body must be constantly employed; men are thence disposed to activity, labour and exercise, and become, in every respect, a superior race [§].

By his lov'd *mansionry*, that heaven's breath
Smells wooingly here:
Where they most breed and haunt, I have observed,
The air is delicate." *Macbeth*, Act 1. Scene 6.

[†] See his Journal, vol. i. p. 386.

[‡] Hufeland, vol. i. p. 268, 269.

[§] Clifton's Hippocrates. On Air, Water, and Situation, p. 32.

It must be admitted at the same time, that frequent changes of weather *, more especially when they are sudden, do affect the health, the constitution, and the spirits; more especially in this country, where the variations are so common, and so violent. Hence it is the more desirable to study this subject attentively, that we may be fully aware of the means, by which the dangers of a variable climate, can best be counteracted.

Medical persons in particular, ought to consider, with peculiar care, what weather may be expected at the different seasons of the year, in the districts where they practise; the signs also of good or bad seasons †, and the variations to which they are liable. By attention to this important subject, Hippocrates supposed he could prognosticate, from the nature of one season, the diseases likely to prevail in the next. Sydenham also, who was a sagacious and indefatigable observer, attempted, by the same means, to foresee future diseases, and to make use of the proper measures for preventing them. Arbuthnot has treated this subject with great ability; and his work on Air, is one of the most valuable treatises we have on the subject ‡.

1. *Hot Climates.*—We have already observed, that it is more difficult to endure the effects of excessive heat, than to protect ourselves against severe cold. When the temperature of the atmosphere is not above 90°, it is possible, by rest, shade and ventilators, to ward off its discomforts; but when the heat is greater, as when the temperature of the air rises above blood heat, it becomes much more difficult to render the cli-

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* In a work entitled " Le Medecin des Dames, ou l'Art de les conserver en " Santé," printed at Paris, in one vol. 8vo, anno 1771, there are some ingenious observations on the four seasons of the year, applicable to the latitude of France. Perhaps the best work on the medical climate of Great Britain, is, " The Manual of Health, or the Invalid conducted safely through the Seasons," printed by Johnston, St Paul's Church-Yard, London, 1806, written by the celebrated Dr Beddoes.

† It has been observed, that the silence of grasshoppers, the croaking of frogs, and bees not making honey, are signs of a bad season.

‡ Dr Strother, in his Treatise on the Non-naturals, p. 91, justly remarks, that the nature and effect of air, are peculiarly entitled to the attention of medical men, for a change in it, is very often a necessary part of their advice. Some persons find themselves much disordered in one sort of air and weather, yet are perfectly well in another, the causes of which will easily be discovered, by any one who thoroughly understands the physiology of the air, and the constitution of his patient. Most people find the effects of good air, more especially in stomachic and pectoral cases, and ought to be sent to those places where it can be had in the greatest perfection. It may be here remarked, that there are some places, where the air agrees very well with one asthmatic person, but in which another with a similar disorder cannot exist. The causes of these differences are by no means of easy explanation.

mate endurable, and men in such circumstances have even been induced to live in caves and grottoes. Lord Bacon ascribes the longevity of the ancients, partly to their living in caves; and I am informed, on most respectable authority, that a lady, who had gone from London to Virginia, found the summer heat intolerable, until she fortunately discovered, near her house, a large natural cave, where she and many of her neighbours, frequently spent the day, totally unmolested by the greatest heats. The Italians also, seek coolness in summer, either by sitting in dark rooms on the ground floor, or in those with a northern aspect. In India, in addition to wetted hand-fans used by attendants, and to punkas, or large fans hung from the roof, and kept in constant motion by servants, the rooms are capable, during the prevalence of the arid and very hot land winds, of being brought down to a comparatively pleasant temperature, by the use of open-plaited grass-mats, called *Tattees*, kept constantly wet, so that instead of the hot wind reaching the sitting room, it is cooled as it enters it, by the rapid evaporation of water. In very hot climates, every invention of this kind ought to be resorted to; and perhaps a part of each house, ought to be constructed in the grotto style, or with arched vaults, capable of mitigating the intensity of the heat *.

2. *Cold Climates.*—In cold climates, so long as the inhabitants of a country continue uncontaminated by luxurious habits, their natural diversions being all of the athletic or violent kind, exercise, and even fatigue, are habitual to them. But the effeminacy of modern manners, has not only deprived us, of this, our natural defence, against the diseases most incident to our cold climate, but subjected us to all the inconveniences of a warm one. Thus, our well-built houses, and close and overheated rooms, are not uncommonly a source of disease, the transition from them to a cold atmosphere, proving in the highest degree hazardous. People certainly, ought not to rush from heated rooms, into the open air, without great precautions; for, by a very little prudence, the danger from cold air may be rendered very slight. Indeed, to those under exercise, the action of cold, unless it be excessive, or accompanied with great moisture, rarely produces any bad effects.

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* It has been observed in China, that wet clothes exposed to the air, are colder than the temperature of the atmosphere, as long as they retain any moisture. Accordingly, in that country, rooms and galleries formed of canvas, are kept constantly wet, to give coldness to the air within.—*Irwin's Essays on Chemical Subjects*, p. 215.

It is a good maxim, not to be apprehensive of rain *or* cold, though rain *and* cold, combined, are highly injurious.

A common cold, the parent of so many other disorders, generally arises in the following manner: When a person, after exposure to cold weather, returns home, he approaches the fire to warm himself, and very often takes some warm and comfortable drink, "*to keep out the cold.*" He is soon attacked with sneezing, accompanied with a glow within his nostrils and breast, as well as over the whole surface of the body. This is followed, by a disagreeable dryness and huskiness in the throat and breast. By and by, a short, dry, tickling cough comes on. He feels a tendency to shivering, which makes him draw nearer to the fire, but the more he tries to heat himself, the more chilly he becomes. All the mischief, it is evident, is here caused, by the incautious exposure *to heat*, when the system is unprepared for it.

No one, on coming from a very cold atmosphere, should at once expose himself to an overheated apartment, and he should, for a time, keep himself at some distance from the fire; while it is exceedingly unadvisable to take hot liquors, when under the influence of extreme cold. This rule seems to be founded on the same principle, which regulates the treatment of a frost-bitten limb or other part. If the frosted part be exposed at once to the fire, it mortifies; whereas, if rubbed with snow, no bad consequences follow. Hence, the frequent colds we experience in winter would, in a great measure, be prevented, if the following rule were strictly observed: *When the whole body, or any part of it, is chilled, bring it to its natural feeling and warmth "by degrees."* The application of the flesh-brush, to the neck and throat, is generally found of great use, in strengthening those parts against the effects of cold.

It is not our province, to enter into the question of the medical treatment of catarrh. Individuals generally have sufficient experience of colds, in their own persons, to know what is best for such slight attacks of catarrh, as do not require the assistance of a physician. And while some are saved from dangerous pulmonary affections, only by taking the greatest care of a cold, others find slops, and nursing, a sure means of fixing an obstinate cold upon them. The only advice therefore, we can here give is, that every man should, as soon as possible, learn, how best to manage, in his own case, an incipient cold, or if it continue, should consult an intelligent medical friend; for a neglected or mismanaged cold, is the most frequent source, in our climate, of irretrievable loss of health.

It is the more necessary to attend to these observations, as external cold, generally constitutes the chief exciting cause of the epidemic, and other prevailing diseases in Great Britain.

3. *Moist Climates.*—Moisture seems to be principally injurious to the human species, from its enabling the atmosphere, to take up and retain miasmata, which prove injurious to health. This subject is to be considered with reference to the source of moisture. Thus, the winter fogs of London and of Paris, have little effect on the general health of these cities, while the moist climate of a fenny country, is not only a source of dangerous fevers, but of general bad health to the inhabitants. This difference perhaps may be explained, by the moist vapour, being, in the former case, the mere sinking down of the clouds, while in the latter, it is composed of damp exhalations from the surface of the soil, retaining substances having a poisonous action on the human system. The best preventive, for the disorders of a moist climate, therefore is, to improve the country by draining and cultivation. The good effects which may be thus produced, are ably described by a very intelligent correspondent, (Dr Kirkland), who had resided for about thirty years in the Hundreds of Essex, which were at one time so unhealthy, that hardly any stranger would venture into them. Owing however, to the various improvements which have been made in its agriculture, more especially by draining and laying the fields open, the country has assumed a different appearance; not only are the inhabitants less subject to ague, but that disease has become more tractable; and the people have lost, in a great measure, that emaciated and jaundiced look, by which they were formerly characterised *.

Similar good effects were produced in the isle of Ely, by improvements in cultivation. Before it was drained, the births were to the burials as 61 to 70; but they are now, as 60 to 54.

4. *Dry Atmosphere.*—A dry climate may be considered generally a healthy one, although, no doubt, many individuals, particularly those liable to certain chest complaints, cannot safely remain in such situations. A hot and dry state of the atmosphere however, is exceedingly painful and insalubrious. Thus the season of the hot land winds of tropical climates, produces most uncomfortable effects, particularly on Europeans. In-

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* See communication from Dr Kirkland, Code of Health, 2d edit. vol. ii. Appendix, p. 214.

stead of being attended with the free perspiration, which a high temperature generally produces, this wind dries up the skin, and while it lasts, occasions a feverish state of the system, so that at no time is a sea breeze more delightful, than when it puts an end to a hot land wind. People who are necessarily exposed to these parching winds, ought to protect themselves from them by every means in their power. In particular, cooling the air by making it pass over water, as is mentioned above, may be safely resorted to. The diet, during the prevalence of dry hot weather, should be moderate and light, and little wine or spirits of any kind should be used.

5. *Light Atmosphere.*—In the torrid zone, as has been already observed, table land of 8,000 or 10,000 feet above the level of the sea, while it affords a delightfully temperate climate, is found to be exceedingly conducive to the health of tropical valetudinarians. But on this head it must be kept in mind, that mountains of a lower altitude, within the tropics, have proved themselves liable to most extraordinary vicissitudes in regard to healthiness. Thus, the Sherwarray Hills, near Salem, in the Madras territory, from 4000 to 5000 feet above the level of the sea, and which had been resorted to by several invalids on account of their apparent salubrity, all at once became so unhealthy, that very few of those, who had been induced to take up their abode on them, escaped with life. In colder climates, on the other hand, the great reduction of temperature which results from a light atmosphere, renders ascending lofty mountains extremely hazardous, as the cold, combined with the rarity of the atmosphere, may produce very serious injury to the lungs. Scientific objects therefore, furnish the only rational excuse, for exposure to an extremely rare atmosphere in the more temperate zones.

6. *Sea Air.*—In regard to maritime air, Dr Franklin has remarked, that St Helena, Bermuda, and all smaller islands far from continents, in which every wind that blows, while cooled by the sea, will be loaded with saline vapours, and be free from terrestrial exhalations, must be more healthy, than continental countries in similar latitudes. This observation seems to be founded on truth.

Some authors however, have denied the wholesomeness of air *at sea*. This, perhaps, has arisen from the mistake as to the source of scurvy. Indeed, before the celebrated Cook, fortunately found a remedy for the evil, the scurvy was the bane of all those who attempted distant voyages. An abstract of his system, so important to this, and to all other maritime countries, will be given in a subsequent part of this work, which is at the same time interesting, as furnishing hints, by means of which the health even of persons on land may be preserved. In truth, if any circumstance can convince the thoughtless and the ignorant, of the advantage to be derived from rules for the preservation of health, the benefit which has resulted to seafaring people, by the adoption of Cook's system, must have this effect; for, prior to its introduction, the life of a sailor was rendered miserable and insecure, from his extreme liability to scorbutic complaints, which can now in a great measure be avoided.

III. *Rules connected with the Age and Condition of the Individual.*

This subject must be considered under the heads of, 1. Infancy; 2. Youth; 3. Manhood; 4. Sickness; 5. Old age.

1. *Infancy.*—Infants are more liable to be affected, by variations of temperature, than adults, and it should therefore, early become an object to inure them to our changeable climate. This, however, must be done with great care; for although Arbuthnot states, that he has known instances of children being brought to endure all weathers, as safely as do the beasts of the field, still we must keep in mind, that the exposure, which to one child would bring health and strength, would prove death to another more delicately organised.

The air of cities is uncongenial to children; and the great mortality among infants under two years of age in London, although no doubt attributable in part to the neglect of their offspring, by the necessitous and the licentious, must in a great degree be ascribed, to atmospheric impurities; for in the new and improved streets, where the air may be supposed to be better, comparatively fewer children die at an early age, than in the old and more confined parts of the city.

Although newly born infants, require more external warmth than is afterwards necessary, the extent to which overclothing infants is carried, often proves highly injurious, and it is particularly unadvisable, to overload a child with bed-clothes during sleep. The custom also, of covering an infant's face with a thick cloth, while in the cradle, ought to be given up. The air of nurseries should be free, and a fire should be prohibited during the night. The more an infant is in the open air, in fine weather, the better. But it must be kept in mind, that all these rules may have their exceptions, and that, while the delicacy of some infants, renders confined apartments, and an equable temperature, indispensable, others are so hardy, that they seem to thrive only by exposure.

2. *Youth.*—The influence of our atmosphere on the young, is generally manifested through the glandular system, which is, at an early period of life, more liable to disease, than after the growth of the body is complete. The lungs, as being more immediately exposed to atmospheric vicissitudes, require, during the growth of the body, particular attention; and wherever there is any hereditary or apparent tendency to pulmonary affections, attention to these organs is of paramount importance. Indeed, many valuable lives might be yearly saved, by an early removal, to a climate more congenial to the constitutions of those, whose lungs are predisposed to disease.

Attention to the atmosphere in which the young are reared, is of more consequence than is generally believed. Thus the ventilation of nurseries and school-rooms, should be a constant source of anxiety to mothers and to the guardians of the young. These apartments ought to be placed in the upper stories of the house; they should be spacious, and capable of the freest ventilation. They should at the same time however, be prepared for winter weather; the window-sashes should be carefully fitted, and it is far from being unadvisable, to have double window-frames. The number of windows, should correspond to the size of the room; and if the room be very large, there ought to be two fire-places in it. Fires are preferable to stoves, as they are a better means of assisting in the ventilation of rooms. As soon as the children leave a school-room or nursery, the windows ought to be thrown open.

3. *Manhood.*—There is nothing so conducive to health as exercise in the open air. This is a fact which ought never to be lost sight of by the inhabitants of cities, whose avocations, generally confine them to the house, and who, perhaps being at some distance from the open country, and not having the means of reaching the fresh and invigorating air, which a rural situation affords, find little advantage or pleasure in a street walk. But even this substitute, poor as it is, for free country air, ought daily to be resorted to by those, who are confined, for the greater part of the day, to close and ill-ventilated apartments, and who have not the means of getting beyond the precincts of the city. The good effects of exercise in the open air, in almost all weathers, need scarcely be enumerated. By inuring ourselves to the vicissitudes of our variable climate, we take the most likely means of strengthening our lungs, and of escaping pulmonary complaints; and nothing is so likely to ward off dyspeptic and bilious disorders, and those obstructions of the bowels, which so frequently lead to

fevers and affections of the head; while the reward of regular exercise in the open air, is hilarity of mind, a good appetite and the safe enjoyment of it, and sound and refreshing night's sleep.

In walking for health, we should neither go abroad too late, nor too early. But in fine summer weather, the morning air is wholesome; and however pleasant lying in bed may be, it will soon be found more agreeable, and far more healthy, to breathe the fresh air of a summer morning *.

4. *Sickness.*—Very great mistakes are often committed in ventilating the apartments of the sick. Fortunately the time has passed away, when it was the practice of converting the bedroom of a fever patient into an oven; and our medical men, and sometimes even the nurses, are fully aware of the advantages of freely admitting fresh air into rooms occupied by fever patients, and those suffering from inflammatory affections. Still however, the prejudice, in favour of shutting up the sick in confined apartments, is too common, particularly with the lower classes, among whom, comfortless as their houses are, more injury is done to the sick, by heat, than by cold; and it is sometimes necessary, in visiting these abodes of misery, to imitate the example of the highest judicial functionary on this side of the Tweed, who, on one of his charitable visitations, finding a *nailed-down* window, in a room filled with the residuum of the breathings of a fever patient, and of a number of other people, remedied the evil, in the shortest way, by breaking several panes of glass.

The importance of attention, to the free ventilation of the apartments of the sick, cannot be too much dwelt upon, and this should be particularly kept in mind, by those who philanthropically exert themselves for the benefit of the poor.

There are cases however, which call for a very different mode of treatment with regard to air. It is often necessary to treat, in this country, chest affections, for which, in more favourable circumstances, a change to a milder climate would be prescribed; and on these occasions it would be little less than murder, to expose the patients to all the varieties of climate, to which so large a portion of this island is liable. The object then is, to produce a moderate and unvarying temperature; and this can only be accomplished, by the proper construction of a suite of apartments, in which there should not be fewer than three rooms. These should be protected by double doors, so arranged, that, when entering the rooms, one can be closed before the other is opened; also by double sashes. Several thermometers should be placed in these apartments, and the fires regulated according to their indications. The rooms should communicate with each other by large folding-doors; and each should be freely ventilated once or twice a-day—the patient being, of course, removed from the apartment when the windows are open. As a general rule, the temperature to be maintained, ought to be about 65° of Fahrenheit.

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* Mainwaring on Health, p. 42.

It may here be observed, that it is of much consequence in this country, to have our lobbies and staircases protected from the effects of an open outer door, by an inner lobby door, which in cold and damp weather should be always shut, when the outer door is open; for it is undeniable, that not only catarrh, but the more serious chest affections, are often, (unconsciously), produced, in delicate females and others, by passing from one heated apartment to another, through a lobby which has been chilled perhaps below the freezing point, by the free admission of the external air. Such accidents happen, of course, when not only the dress is unprepared for a low temperature, but when the system itself is taken by surprise, and cannot resist the bad effects of the exposure.

There was a sect of physicians at Rome, known under the name of *Methodists*, who regarded air, as no less important than food, to the human system, and who were particularly careful, to accommodate the atmosphere to the state of their patients. For that purpose, they made use of large or small apartments, as occasion required. In fever, and inflammatory disorders, they not only carried their patients to apartments facing the north, but sometimes brought them to grottoes, and places under ground, sprinkling the floor with cold water, when greater coolness was necessary. When the case required to be treated with warmth, the apartments fixed upon, were those which fronted the south, and these were warmed by fires. Even in more modern times, the celebrated Boerhaave has recommended a similar practice *; and it is unquestionably one well worth being kept in view.

Dr Cheyne recommends, that delicate people, on the setting in of the easterly and northerly winds, should change their bed-rooms, for apartments of westerly and southerly exposures, and reverse this arrangement in wet seasons.

The advanced state of chemistry, now enables the physician, to apply various gases for the purpose of fumigating and disinfecting the chambers of the sick. Chlorine seems to be best entitled to an *anti-contagious* character; at least, it has been found capable of destroying the volatile principles of putrifying animal matter; and if there be any excuse for our believing, that we can find an antidote to an inscrutable source of disease, we may ascribe to chlorine, the power of overcoming contagious effluvia. The most convenient method of obtaining chlorine, is by mixing concentrated muriatic acid, with half its weight of finely powdered peroxide of manganese *.

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* Burton's Treatise on the Non-naturals, p. 91, 92. Boerhaave, Aph. de Morb. inter variis locis. Intelligent physicians, by working on the imagination, and giving hopes, even by an attention to trifles, are frequently of singular service to their patients.

Where the object is merely to improve the smell of sick chambers, sprinkling the floor with aromatic or common vinegar, is refreshing to the patient, and pleasant to the attendants; and fumigating pastilles may be burned in the anti-room or lobby. The following is a formula, which may be resorted to for this purpose: Take of benzoin, one drachm; cascarilla, half a drachm; myrrh, one scruple; oil of nutmeg and oil of cloves, of each ten drops; nitre, half a drachm; charcoal, six drachms; mucilage of gum-tragacanth, sufficient to make a paste. The whole to be well beaten together, and divided into pastilles of the proper size †.

Dr Adair found, that he relieved the distressing irregular night fever, to which persons labouring under chronic diseases are liable, and sometimes prevented the exacerbations altogether, by the free admission of cool air into the invalid's bed-room. Such an experiment must of course be tried with caution.

When a person living in the country, is recovering from sickness, it will be found a very salutary practice in fine weather, to sit out of doors, on a piece of floor-cloth to keep out damp, and a carpet or rug to keep the feet warm.

These suggestions may seem of little importance to persons in health; but if such rules be observed, when necessary, they will not only be found a comfort to the sick, but a valuable means of restoring health.

5. *Old Age.*—Galen calls old age *a natural distemper* ‡; and the management of the health of those who have reached an advanced period of life, is, of course, very different from that of those who are young and vigorous.

As life advances, the circulation of the blood becomes more languid, the joints stiffen, muscular power fails, functional energy is weakened, and the whole system falls into a state little capable of preserving itself, or of counteracting the accidents and diseases to which we are at all times liable.

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* See Turner's Chemistry.

† Paris' Pharmacologia, p. 127.

‡ Terence makes nearly the same observation: "Senectus ipsa est morbus."—*Phormio*, Act iv. Scene 1.

The principal point, with regard to air, so far as the aged are concerned, is, that they should be exposed to as little variety of temperature as possible, for they are incapable of resisting extremes; and warmth will be found not only more agreeable to their feelings, but safer. Thus, the health of the aged and infirm, suffers less during summer than winter, and more old people die during the inclement, than the more temperate seasons.

Though purity of air is certainly desirable, yet it may reasonably be doubted, whether men, who are advanced in years, and who have long lived in a crowded city, may not derive more injury than benefit from retiring, when they quit business, into the country, where, although they have purer air, they have more cold than in towns. Habit must be considered as a second nature; and it will be found, that those things to which an old man has been long accustomed, although in themselves unwholesome, are better than sudden and total changes, although apparently for the better.

Such being the case, it is extremely difficult to lay down rules, as to the choice of situation for the residence of the aged, when there is no positive disease to point out the climate which may be necessary. As a general rule it may be laid down, that the best situation for a residence, during the warmer portions of the year, will be, towards the bottom of a gentle declivity, with a southerly exposure, and if it terminate in a running stream, so much the better. In very fine weather, old people may walk in the fields; but a gravel walk ought to be formed near the house, open to the south-west, and well defended from the more inclement quarters. This should be raised in the centre, so that the water may not lodge. It should be well rolled, hard and smooth. Such a walk, will be highly useful, as a place for exercise. The aged should not expose themselves to the open air, when the state of the weather renders the fields and highways unfit for that purpose, or until the dew is off the grass; and the setting sun, should not be watched in the open air, even in the finest weather. But during the winter season, residence in a town, for the aged, has many comforts and advantages.

Some hours of the best part of each day, should be passed in the open air, which will add many years to life, and what is much better, give health with them.

IV. *Rules connected with a Place of Residence, and on the formation of an Artificial Climate.*

1. *Place of Residence.*—It is evident, that the air of a populous city, and that of an open country, must possess very different qualities; for while in the former, there is a constant and rapid consumption of oxygen, in the latter vegetable life is purifying the air. Besides, although we have no chemical tests for ascertaining the fact, and although it has been denied by some late philosophers, it can hardly be doubted, that the air of cities, must be contaminated by a mixture of various effluvia prejudicial to health. We know, that the miasma of marshes, can exist in the air, undiscoverable by any tests; and, we may conclude, that from the mischievous effects of cities on delicate constitutions, matters injurious to health are generated in populous places. It is remarked, that erysipelas, is more frequent in London than elsewhere, and that people coming from the country to reside there, are frequently seized with it. People in London also, living in very close rooms, and thence going out into a cold air, are more liable to colds, than in the country.

When living in a town, it is desirable, not only to live in an open situation, but where trees and shrubs are planted; for, according to the admirable arrangement in the economy of nature, those gases, which are most injurious to animal life, form the nutriment of vegetables, by whose absorbing vessels they are imbibed, while, in return, they pour from their leaves, under the influence of the sun's rays, streams of oxygen, or vital air *.

It will be found, of the greatest service to those residing in cities, to pass a portion of the summer or autumn of each year in the country. Indeed now, that there are so many means of reaching the open salubrious country, few have any excuse for remaining the whole year round, in the confined and unwholesome air of towns. And it is very certain, that many invalids, particularly dyspeptic patients, would find the greatest benefit, in seeking change of air, by a trip to the country, even in the winter season.

We may be excused, for taking this opportunity, of congratulating the inhabitants of the capital of our own native country, on the improvements which late years have introduced into this, at all times beautiful city. The large spaces, which have been converted into garden ground, and laid out in public walks, in the new town, are of inestimable value to the inhabitants; and the much-decried improvements in the older city, have, at least, this to recommend them, that the new bridges and streets now to be formed, will prove conduit pipes for the introduction of currents of fresh and purifying air, into those parts of the town, in which contagion, miasms, putrid exhalations, and the filthiest vapours, have heretofore been so prevalent.

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* Buchan on Sea Bathing, p. 157.

2. *Artificial Climate.*—It may be proper here to allude, to the plan of having houses built of a peculiar construction, for the aged and the sickly, in which the air, should always be preserved, at nearly the same temperature. In this way, an artificial climate might be procured, in a northern country, capable of answering the purposes of a warmer region. We are informed by Dr Rush, that the late Dr Dewlt of Germantown, (who reached nearly 100 years of age), after he became an old man, lived constantly in a stove-room, and seldom breathed an air below 70°. In Sweden and Russia, by means of stoves, they keep their chambers always at the same temperature, notwithstanding the severity of the climate. In Britain, on the other hand, the aged generally die in winter; and many individuals, in a weak and consumptive state, are obliged to fly to warmer climates, as the only means of safety. Might it not then be of the greatest service, both to the aged and to the consumptive, to have houses erected, of such a construction, that the air could always be preserved, not only warm, but nearly of the same temperature, so that invalids should have the power of counteracting the vicissitudes of the seasons? Such a contrivance, it must be admitted, cannot be a general resource; but it is well worthy of the attention of those who are in affluent circumstances, and it is to be hoped, that by some, the experiment will be fairly tried *.

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* The late Dr Pearson of Leicester Square, in London, paid particular attention to this subject, and contrived the plan of a house, that would enable any individual, during the severest winter, to enjoy the pleasures of the genial warmth of a summer climate. On some such plan, hospitals for the aged, and the consumptive, might be erected. An ingenious author, (the late Dr Beddoes, Manual of Health, p. 217), has strongly recommended, what he calls *conservatories of old age.* (See also his Hygëia, or Essays Moral and Medical, &c. vol. ii. p. 94.) He observes, " that they would be the most useful of hospitals; but they need not, in general, have the character of an hospital. Numbers of óur countrymen, might repose their grey hairs with independence, in comfortable retreats, secured by a very moderate share of the earnings of their own industry. This is not altogether speculation; one club for old people has had a most prosperous beginning. It was not established amohg us, and I regret being obliged to import

It has been objected, that the plan of confining invalids to rooms of an equal temperature, forms *a hot-house plant*, which afterwards proves totally unfit to bear even the summer breeze of this country. But experience has amply confuted this objection.

CONCLUSION.

The advantages of fresh air, are happily exemplified, by the following anecdote, related by a physician, of two sisters, who had followed, in that respect, opposite systems.

The elder, Maria, was fond of reading or needlework, and, in general, of every thing that suited a sedentary life. The consequence was, that she became weak; her nerves very irritable; and every change of weather affected her. She was perpetually obliged to have recourse to medicines, which, had they been assisted by a sound constitution, acquired by attention to air and exercise, most probably would have produced the desired effect. But Miss Maria was always at home, always sickly, and always under the care of a physician and apothecary.

Her sister Jane, on the other hand, was a very lively girl, and possessed of much natural good sense. She did not neglect to apply to her work and her studies at proper times; but she had made it a rule, to walk out whenever the weather permitted. Bad weather had seldom any other effect upon her, than to deprive her of her usual exercise. By these means, she enjoyed an excellent state of health; and, whenever she happened to have any complaint, her physician had the satisfaction of finding his medicines effectual.

A knowledge of the properties and uses of the atmosphere however, is as essential for the lower as for the higher ranks of society. It is said that the late Dr Darwin, having assembled a large crowd of people around him, thus addressed himself to them: "Ye men of Nottingham, listen, I pray you, to "me. You are ingenious and industrious mechanics. By "your industry, life's comforts are procured for yourselves "and families. If you lose your health, the power of being "industrious will forsake you. *That* you know; but you do

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the fact, from another country." He then gives an account of the "*Retraite de la Vieillesse à Chaillot*," where a person, by advancing 1080 francs, (about L.50 of our money), in any instalments, beginning not later than at forty years of age, acquires a right of reception at seventy, or at any other age (provided the subscriber be incapacitated from maintaining himself) not earlier than ten years after commencing his subscription. He is to be maintained without farther expense for the remainder of his life.

" *not* know, that to breathe fresh and changed air constantly, " is not less necessary to preserve health than sobriety itself. " Air becomes unwholesome in a few hours, if the windows " are shut. Open those of your sleeping rooms, whenever you " quit them to go to your work-shops. Keep the windows " of your work-shops open, whenever the weather is not insupportably cold. I have no *interest* in giving you this advice. Remember what I, your countryman, and a physician, " tell you. If you would not bring *infection* and *disease* upon " yourselves, and to your wives and little ones, change the air " you breathe. Change it by opening your windows several " times a-day *."

We cannot conclude this subject better, than with the answer of an intelligent physician, who, being asked, What was the best rule for the preservation of health? replied, " *To be* " *as much as possible in the open air, without fatigue.*"

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* See the Appendix, No. III. where the advantages derived by the lower orders in towns, from occasionally breathing the pure air of the country, is ably stated.

CHAP. II.

OF LIQUID FOOD.

NEXT to air, liquid food is the article the most essential for the support of life. Without it, there is scarcely an instance of an individual having existed for any length of time, while some persons have lived long with but little solid sustenance *. Indeed, though the frame of a man outwardly appears to be a solid body, yet the fluids greatly exceed the solids, in point of weight. The quantity of blood and other fluids in a man weighing 160 lbs. is at least 100 lbs. †; and even in the solids, a considerable proportion of fluids is contained. Hence it is, that without carrying the rule to excess, we ought to take a greater proportion of liquid than of solid nourishment.

It is unfortunate that more attention is not paid to the quality of liquid aliment, and that individuals are not careful to regulate the quantity they consume ‡. The wine we take is often adulterated, and hence becomes the source of disease. Our malt liquors are frequently mixed with unwholesome ingredients, or improperly fermented ; and our ardent spirits are rendered more destructive to health than otherwise they would be, by deleterious additions, and by too rapid distillation.

A principal cause of the deterioration of our liquid food arises, from the various articles being the objects of high taxation. The taxes upon wine, tempt the smuggler, or the dealers in it, to practise adulteration. The duties upon malt liquors, and the still higher taxes upon distillation, have tended materially to injure the quality, both of our malt liquors, and ardent spirits; and the same observation is applicable to cyder, mead, &c. The liquors taxed, are generally accounted articles of luxury ; and financiers seem to think they do enough, when they leave the pure element without an impost. But though water is undoubtedly the most natural, and ought al-

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* Indeed, some experiments which were made by Redi, would seem to prove, that an animal which would die after nine days' starvation, lives twenty days if allowed water. The great necessity for a regular supply of liquid aliment, seems partly to arise from the constitution of our frame, partly from the constant discharge of fluids which goes on at all times from our system.

† Keil's Essay on Animal Economy, p. 62.

‡ The ancients were much more attentive to this important branch of regimen, than the moderns are. See Barry's Observations on the Wines of the Ancients, where that subject is fully explained.

ways to be the most general beverage of mankind, yet other liquors, used in moderation, in many cases improve the health, and in others tend to promote the comfort, to enliven the spirits, to alleviate the cares, and to increase the social pleasures of the human race.

Nor ought the political economist, in his consideration of this subject, to forget the immense number of persons, who derive the means of their subsistence, from the cultivation of that portion of the soil, that is employed in raising the various productions from which our *liquid food* is extracted; or those numerous classes of the community, who are occupied in carrying on the manufacture, the transportation, and the sale of these articles. If mankind in general were induced, to adopt exclusively the pure element of water, *as liquid food*, it would make a very great revolution indeed in the employment, and the structure of society.

Having premised these general observations, we shall now proceed to consider more particularly; I. The necessity and uses of liquid food; II. The different kinds of liquids commonly used; and, III. The rules to be observed, in regard to the consumption of liquors, both as to time and quantity.

SECT. I.—*On the Necessity and Uses of Liquid Food.*

THE following observations will, in some degree, explain the nature and uses of liquid food.

1. If the human frame be, as Dr Mead defines it *, a *hydraulic machine*, consisting more of fluid than of solid particles, it is evident, that liquid food is necessary to keep up that quantity of fluids, which the body is constantly losing by perspiration and other means. Here nature, wise and provident in all she does, gives us notice, from time to time, of the indispensable necessity we have for additional fluid matter, by exciting that feeling or desire, known under the name of *thirst*. This feeling increases, according to the quantity of liquid required; for example, the effect of violent exercise, is to throw off rapidly the fluid portions of the system, and the consequence is a proportionably increased desire for drink.

2. When a quantity of solid food is introduced into the stomach, a proportional quantity of liquid is required, to enable the digestive process to be performed.

3. Without a sufficient quantity of fluid in the system, the most direful effects are produced. The most formidable example

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* Mead's Medical Works, p. 342.

of this may be found, in the disease which is now ravaging the world. In the pestilential cholera, the watery portions of the blood are rapidly discharged from the system, and death appears, in many instances, to be solely owing, to the blood becoming too thick for circulation. There seems reason to believe, that when the blood is rendered thick, by too small a portion of fluid being taken, obstructions and inflammations are likely to ensue *.

4. The liquids we take, contribute likewise to keep the body in a due state of temperature. When it is too warm, the violence of the heat is abated by cooling liquors, by which some part of that heat is absorbed. When the body is too cold, on the other hand, liquors moderately warm, are found beneficial in restoring temperature.

5. The liquids we take, furnish, in different degrees, nourishment themselves. Even water is found to be nutritious †. Milk is certainly very nourishing; and wine and malt liquors are generally regarded to be so, to a certain degree.

6. In the last place, our liquid food tends, more than our solid, to stimulate the languid powers, to enliven the spirits, and to cheer the heart. When the body is exhausted by fatigue, how refreshing is a single draught of a wholesome beverage! When the mind is borne down with care, how rapidly is it exhilarated by a cheerful glass! And, when the whole frame labours under the pressure of disease, there is no medicine so likely, in certain cases, to restore it to its former health and strength, as the genuine juice of the grape.

Although liquid food then is necessary to assist digestion, to maintain the fluids of the body, and to supply that exhaustion of them, which is constantly going on, still it must be kept in mind, that moderation is very necessary in this as in every other respect; and the quantity of diluents which each person may require, must depend, upon individual peculiarity, climate, nature of the solid aliment, and other circumstances.

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* A gentleman of the author's acquaintance, who had lived freely, resolved to preserve his health by a change of system. He never drank any thing at dinner but wine, took no soup, or broth or gravy, but lived principally on meat and dry toast. He took some glasses of wine also after dinner. He died in the prime of life, of an inflammation, which, it was thought, his mode of life, had contributed to produce, for, owing to the scorbutic state of his blood, the only remedy that could have saved him, that of bleeding, was rendered inadmissible. This proves the danger of adopting new modes of life, without a thorough acquaintance with the structure of the human frame.

† See an interesting experiment, from Cheyne's Essay on Health, mentioned in Part II. Chap. V. Sect. 2, note.

SECT. II.—*The different Kinds of Liquid Food commonly used.*

THE liquids commonly used, are of four different sorts: I. Simple fluids. II. Those which are compounded with water, but unfermented. III. Fermented liquors: And, IV. Distilled or ardent spirits. Each of these will require a separate consideration.

I. *The simple Fluids.*—There are two simple fluids used as food: 1. Water; and, 2. Milk.

1. *Water.*

Water, in its common state of purity, (for by distillation it can be rendered more pure), is a fluid perfectly clear and transparent, without colour or smell, possessed of little elasticity, and only, in a very small degree, compressible. It usually contains atmospheric air, and carbonic acid gas; and if deprived of these, (which happens when it is boiled), it becomes vapid, for to the presence of these gases, water owes what may be called its taste; and likewise, many of the beneficial effects which it produces, both on animals and vegetables *.

Water, though apparently a simple fluid, is composed of two gases, oxygen and hydrogen; eight parts by weight of the former, to one of the latter, or one volume of oxygen to two volumes of hydrogen, oxygen being sixteen times heavier than hydrogen.

The following signs of good and bad water are extracted from Vitruvius, and other authors who have engaged in the investigation †.

1. It may be inferred, from the vigour and florid looks of the inhabitants, and from the healthiness of the animals living in the neighbourhood, that the water they use is good in quality. 2. When salubrious water is dropt on pure copper, it occasions no stain. 3. Vegetables, particularly pease, beans, and other pulse, are cooked easily in good water. 4. Good water is light; and perhaps lightness of water is the best proof of its being wholesome. 5. Water which dissolves soap in the

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* Thomson's System of Chemistry, vol. iii. p. 427. Mr Henry found that 100 cubic inches of spring water contained 3.38 inches of carbonic acid, and 1.38 of atmospheric air.

† In particular, a work entitled, De l'Eau, relativement à l'Economie Rustique, par M. Bertrand, &c. Lyon, 1764.

completest manner, is generally esteemed good. 6. Springs issuing from sandy soils, sandstone, gravel, and redstone, are usually wholesome. 7. Good water is totally free from smell. 8. Good water acquires the taste, colour, and flavour of whatever it dissolves. 9. Water of good quality is easily heated, and soon cools when removed from the fire. 10. When the banks of a river are clothed with fresh verdure, it is reckoned a good sign of the water. 11. Waters which produce water-cresses are of good quality. 12. When ponds or rivers abound with fish, if the fish appear healthy, and are found well tasted, the water may be used in diet.

Signs of bad Water.—1. In a situation otherwise salubrious, where the people are pale and unhealthy; and, in particular, where they are troubled with swellings in the throat, there is reason to suspect the quality of the water. 2. Water, which, in a boiling state, will not soften pease, beans, and other pulse, is unfit for use. 3. In general, water which issues from peat-moss is unwholesome. 4. Where the water has a petrifying quality, or is much impregnated with calcareous earth, it is bad: And, 5. When water is combined with saline or sulphureous substances, it is not calculated for culinary purposes. Indeed, mineral waters, though useful as medicine, are not so proper as common diluents, to be taken for ordinary drink.

It has been disputed, whether what is called *hard water*, or water in which a portion of sulphate of lime is present, and which cannot be used with soap *, is to be taken with safety as drink †. There are probably few, who would not give a preference to soft, over hard water, for general use; at the same time, the authorities in favour of hard water, and the proofs adduced in its behalf, must be sufficient to satisfy persons who have no other water to which they can easily have access, that they need entertain no apprehensions of danger from using it.

Water may be divided into two kinds, *Common* and *Mineral.*

By common water, naturalists understand that which has no perceptible distinguishing taste or smell, and which is capable of being used for cooking and as drink.

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* When soap is put into hard water, its alkali is immediately attracted by the salt of the water, the soap is decomposed, and the oil of it swims on the surface.—*Encyclopæd. Brit.* vol. xviii. p. 811.

† What is called hard water arises from the presence of sulphate of lime, (5 or 6 grains to the pint constituting hard water). This description of water disagrees with animals, and is even believed to produce disease of the spleen in sheep. Cattle refuse to drink extremely hard water.

Mineral waters, on the other hand, contain foreign substances, and as they are never, except from necessity, used as aliment, they do not come within the scope of the present inquiry. Water slightly chalybeate however, is both pleasant and wholesome for common drink, although ill calculated for making tea, boiling vegetables, &c.

Common waters may be considered under the following general heads: 1. Rain, 2. Snow, 3. Spring, 4. River, 5. Lake, 6. Marsh, and, 7. Pond water; to which will be added, some observations on the means of rendering sea-water fit for being used in diet.

1. *Rain-water.*—Rain being produced by a species of natural distillation, is, at a distance from the smoke of cities, or other source of impurities, the purest natural water.

To obtain rain-water in its greatest purity, it should, as Neumann directs, be collected either on the tops of mountains, or in open plains, and not until after a considerable quantity of rain has fallen; for the rain which falls after a long tract of wet weather, must be pure, as the atmosphere will then be *washed*, if that expression may be made use of, from all extraneous substances. The winter, or very early in the spring, is esteemed the best season of the year for obtaining pure rain-water. When collected with attention to these particulars, boiling, with a view to purify it, is unnecessary.

2. *Snow-water.*—In certain cold climates, and in high latitudes, thawed snow forms the constant drink of the inhabitants during the winter season; and there are some places where thawed snow affords the only water to be had all the year round. In the Alps, where this is necessarily the case, many of the inhabitants are deformed with swellings in the neck, which have been imputed to the use of snow-water; but it is now ascertained, that the same disease is frequent in Sumatra, where ice and snow are never seen, and quite unknown in Chili and Thibet, though the rivers of these countries are chiefly supplied by the melting of the snow, with which the mountains are covered. Captain Cook indeed, in the southern hemisphere, found that the fresh water from the ice of the sea, was perfectly safe, and that this mode of filling his water-casks, was as good as any that he could devise. So that if goitre be produced by the use of snow-water, this is not the only source of the disease, while it does not seem to be invariably occasioned by the use of such water. When immediately melted, snow-water contains no air, that substance being expelled during freezing; consequently, it is remark-

ably vapid, but exposure to the atmosphere soon restores the air it had lost *. The water from snow that falls in calm weather is next in purity to distilled water, and will keep good for many years †.

Water from melted hail ought to be peculiarly pure; for we may suppose, that only the finer vapours ascend to the highest regions, and they are there congealed into a form, which cannot easily combine with impurities in its descent ‡.

Ice may be formed either from fresh or salt water. As to the first, we find it placed by Celsus, in the fifth rank in regard to wholesomeness, or after rain, spring, river, and well water §. As to the second sort, in a work written many years ago, by a Danish author, (Bartholinus, De Nivis Usu), it is stated, that if the ice of sea-water be thawed, it is found to have no saltness, which was ascertained by a professor in the University of Copenhagen; and a British writer, whose work was published in the year 1738, takes notice of that circumstance, adding, that thawed ice, from sea-water, is often used at Amsterdam for brewing ‖.

3. *Spring-water.*—Under this general head are comprehended, all those waters that arise from any depth to the surface of the earth, and are used, either at the fountain-head, or before they have mixed with other waters. These certainly should be as pure as rain-water, with the advantage of being filtered in their passage through the soil; and when it does not meet with soluble substances, spring water is found perfectly pure. The best are such as flow through gravel or fine white sand. Springs, in a clay soil, generally produce hard water.

Where springs do not rise to the surface, it is necessary to dig for the purpose of finding water. Well or pump water, is derived from the same source as spring-water, but it is more liable to be impregnated with foreign ingredients, in consequence of its slow filtration; hence the more a well is used the better. The water of wells, not in sandy or gravelly soils, has often the advantage of containing a greater quantity of fixed air, or carbonic acid gas *. In some places, wells have been dug to no less a depth than 500 feet, and these, by the purity of the water thus obtained, have amply repaid the trouble and expense. By a well having been sunk to nearly the above-mentioned depth, and in consequence of the good water procured, the inhabitants of the parish of Steeple, in Dengy hundred, Essex, derived the greatest benefit to their health.

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* From its want of air, no fish can live in snow-water, until it has been exposed to the atmosphere.

† Burton's Treatise on the Non-Naturals, p. 238. Barry, in his Observations on the Wines of the Ancients, p. 392, states, that from experiments which have been made on water, collected from the purest snow dissolved on the highest mountains, and the best common water, it appears, that the former possesses several peculiar qualities, which must render it more salutary as a beverage.

‡ Burton's Treatise on the Non-Naturals, p. 237.—Also, Willich's Lectures on Diet, &c. p. 392.

§ Grieve's Celsus, p. 97.

‖ Burton's Treatise on the Non-Naturals, p. 238. Sir John Pringle therefore, in his discourse on some late improvements upon the means of preserving the health of mariners, p. 34, was mistaken in supposing, that the celebrated Cook was the first who discovered that frozen sea-water thawed into fresh.

4. *River-water.*—It might be supposed, that the various sources, and numerous fountain-heads, whence rivers derive their contents, would render river water objectionable. It does not however prove so. This may, in part at least, be accounted for, by the deposition which will take place of insoluble salts, consequent on the admixture of different springs, containing in solution different saline substances, having a stronger affinity to each other than to water. When river-water appears impure, by being allowed to stand, the substances suspended in it subside, and the pure and tasteless water remains. Thus, the Thames water, although it brings along with it the impure substances met with in its passage through a richly cultivated country, and many populous towns, on being allowed to stand, becomes perfectly pure, and is, consequently found, to be the best possible water for sea voyages †. River-water therefore, may generally be considered fit for the purposes of diet ‡.

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* Thomson's System of Chemistry, vol. iii. p. 429. There are many useful works on well or pump water, as Heberden's Observations on the Pump-water of London, (Medical Transactions, vol. i.); Percival's on that of Manchester; and Falconer's on that of Bath. Dr Heberden asserts, that most of the pump-waters used in London contain lime, and vitriol, nitre, and sea-salt, besides an oiliness, which gives them a remarkable yellowish cast. They are also liable to be tainted in their passage under ground, by various impurities, natural to the neighbourhood of so large a city. The nitre in these waters, makes the flesh boiled in them become red. The tea and coffee infused in them, also, are not palatable; and several physicians suspect, that they occasion many disorders, more especially among the infirm and children.

† The Thames water seems to undergo, in the water-casks, a species of fermentation, and, consequently, at the commencement of a voyage, water from casks recently filled, is not drinkable. This state improves, and the water then becomes pure and pleasant.

‡ See Thomson's System of Chemistry, vol. iii. p. 428 Hooper's Lexicon, &c. Dr Heberden states, that if two or three grains of alum are dissolved in a quart of thick river-water, the dirt very soon collects, and is then slowly

5. *Lake-water.*—The water of lakes is a collection of rain and snow water, spring-water, and river-water, and of course may be impregnated with many of the heterogeneous substances which these waters contain. As the water of lakes is not so much agitated as that of rivers, noxious substances generally subside to the bottom. An excellent mode of filtration is adopted by those who live on the borders of Loch Lomond, the largest and most beautiful lake in Scotland. Instead of taking it from the lake itself, they make a pit or hollow in a bank of gravel on its margin, into which the water naturally flows, cleared from any injurious particles.

6. *Marsh-water.*—Marshes may be in some degree regarded as filled up lakes, in which the shallowness of the water, and the presence of decayed vegetable matter, does not allow the subsiding of impurities which takes place in lakes, in which there is deep water. Marsh-water ought not to be used without boiling and filtering. The use of marsh-water has unquestionably often been the source of disease.

7. *Pond-water, &c.*—From the want of springs, lakes, or rivers, the inhabitants of some countries, are under the necessity of collecting rain-water in ponds and tanks, as the only means of supplying themselves with so essential an article. Such water being rarely good, ought to be boiled and strained before it is made use of. Epidemic bowel complaints have sometimes been traced to the neglect of precaution in the use of stagnant water.

8. *Sea-water freshened.*—The only other means of procuring water for diet, is, by rendering salt water fresh. The most effectual mode of accomplishing this is by distillation, which has been carried to such perfection, that parliament very liberally rewarded the person by whom principally this process was improved. This however, is a method, which can only be applied to a small extent, and under favourable circumstances; and there can be no doubt, that were means discovered, by which the salts contained in sea-water could be easily removed, a great step would be gained, in depriving

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precipitated. If then filtered, it is prepared for immediate use. Travellers in every age have agreed in praising the agreeable taste, and the salubrious qualities of the water of the Nile. These are probably the result of exposure to the influence of the air of various climates, in the long tract through which it flows. The water of rivers is always the most wholesome. The ancients prove, that they were well acquainted, with the effects of exposure in meliorating the qualities of water, by the money they expended on their magnificent aqueducts.

some of the most distressing accidents to which the sea life is liable, of the worst part of their horrors *.

It may next be proper to consider, 1. The means of conveying water from a distance; 2. The means of preserving it for use; 3. The different modes of improving it; and, 4. The arguments in favour of the use of water as a beverage.

1. *Mode of Conveyance.*—As the population of cities increases, the water which the localities afford, in most cases becomes insufficient for the inhabitants, or the filth of the city renders it unfit for use. In such circumstances, it is necessary to look to a distance for a supply of this indispensable article. But if proper means be not adopted, to convey it for the use of the inhabitants, the discovery of pure water in the neighbourhood of a city, will prove of little advantage. In ancient times, aqueducts, at a very great expense, were the means resorted to; but since the discovery, that water, conveyed in pipes, rises to its original level, such stupendous works are no longer necessary. As, however, the purity of water may be destroyed, by the nature of the reservoirs in which it is kept, or the pipes through which it is conveyed, attention to this point is of the utmost importance; and it is certainly wonderful, that leaden materials should have been so long used for conveying and preserving water, since it is well known, that water may be most seriously deteriorated by the changes which it effects on lead, and by its consequent power of dissolving that deleterious metal †. Pipes made of clay or brick earth are far preferable to leaden ones.

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* It is said, that the machine for converting water into ice, might be of use for extracting fresh water from salt; and, in hot climates, ice, if attainable at a moderate expense, would be of great use.

† Water, under particular circumstances, seems more liable than at other times, to form white lead, from lead which is exposed to its action. Any acidity resulting from the presence of vegetable matter or otherwise, seems to increase its corrosive power. Thus, the noted colic of Amsterdam, is said to have arisen from the putrefaction of leaves in the cisterns, filled with rain water, enabling the water to act on the lead, of which they were formed. Other instances are given by various authors, tending to prove the same fact. "The most remarkable case," says Sir G. Baker, "that now occurs to my memory, is that of Lord Ashburnham's family, in Sussex, to which spring water was supplied from a considerable distance in leaden pipes. In consequence, his lordship's servants were every year tormented with colic, and some of them died. An eminent physician of Bath, who corresponded with me on the subject, sent up some gallons of that water, which were analysed by Dr Higgins, who reported, that the water contained more than the common proportion of carbonic acid, and that he found in it lead in solution, which he attributed to the action of the carbonic acid. In consequence of this representation, Lord Ashburnham substituted wooden for leaden pipes, and since that time, his family have experienced no particular complaints in their bowels.

Timber pipes are liable to decay, and apt to give a bad taste to the water. On the whole, pipes made of cast-iron are to be preferred, on account of their durability. It is however expected, that by the removal of the duties affecting the manufacture of glass, water-pipes of that material may be made, not only cheaply, but which will prove durable, free from all objections of injuring the water, and a means of preserving their contents from the effects of frost *.

2. *Mode of preserving Water.*—This is a subject of material consequence, with a view to health. We have already adverted to the dangers likely to occur from preserving water in cisterns of lead. There are some objections even to the use of wood. Freestone or marble would certainly be preferable.

An excellent mode of preserving water, and by which it is filtered at the same time, is adopted in Paris. The water is put into what is called a *fountain*, which is a large and strong earthen jar, about four feet in height, placed on a wooden pedestal. At the bottom, there is gravel to the height of six or eight inches, which should be cleared once a-year, or oftener if necessary. The fountain may be had for a louis d'or; and the waterman receives a trifle for filling it twice a-week, which is sufficient for the generality of families. The water, thus filtered through the gravel, becomes clear as crystal, and is drawn by a cock, at the bottom of the fountain. As the water of the Seine is rarely pure, and is in a dry summer even noxious, such a machine would appear almost indispensable in Paris. It is not liable to the many accidents and constant wear of our filtering stones, nor does it require the attention of those with charcoal †.

A mode of preserving water in distant voyages, which has been found useful, is by charring the casks in which it is preserved.

3. *Mode of improving Water.*—There are many modes by which water, without infusing any article to be retained in it, may be improved. We shall notice six of these; 1. Boiling; 2. Cooling; 3. Distilling; 4. Filtering; 5. Purifying by means of charcoal; and, 6. Agitating by machinery.

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* It has occurred to me, that water might be conveyed in a safe and economical manner, by sinking the pipes in the river from whence it is drawn. Thus, let us suppose that the water is received into a pipe in the river Thames, 20 miles above London, and that the pipe is then continued down to the city; my idea is, that it would save expense to sink the pipe securely in the bottom of the river, and, of course, the water thus brought would rise in London to the level of the river at the point where the pipe commences.

† Pinkerton's Recollections of Paris, vol. i. p. 521.

1. When there is any reason to doubt the purity of water, there is no mode by which it can be so easily improved, as by the simple operation of boiling, filtering when cool, and afterwards agitating it to restore its atmospheric air. In ancient times, public buildings were erected for this purpose, where the boiled water was sold *. In China, water is always boiled before being used as food †.

Boiling hard water however, is not found to be sufficient; for though boiling may make it deposite earthy matters dissolved in it, the saline substances which it contains remain in solution, and as part of the water has been thrown off by evaporation, the proportion of deleterious salts is of course increased. But if 10 or 15 grains of alkaline matter, to each pint of water, be boiled with it, all the noxious qualities of pump water, according to Heberden, would either be precipitated, or rendered innocuous.

2. The ancients, after they had boiled the water, were in the habit of cooling it, by immersing the vessel containing it in snow or ice. This was practised by Alexander in his Indian expedition, and is recommended by Galen ‡. In hot climates, by exposing a vessel filled with water, and surrounded with cloths constantly kept wet, to the hot land winds, the temperature of the water is reduced to a very considerable extent. Saltpetre is also used for cooling water and other fluids, and cooling tubs are in use for this purpose in our Indian possessions. These vessels, filled sufficiently with water, have added to them, the moment before the bottle containing the fluid to be cooled is placed in them, a portion of saltpetre, the solution of which is assisted by stirring with the bottle. The rapid dissolution of this salt, occasions a sudden reduction of temperature, and renders drinks so prepared, as cool as can be wished for. The saltpetre may be afterwards recovered, by the evaporation of the water in which it has been dissolved, so that the process can be conducted without much expense §.

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* See Barry's Observations on the Wines of the Ancients, p. 156 and 160.

† Barrow's Travels in China, p. 547.

‡ Meth. Med Lib. vii. cap. 4. When first boiled, and then cooled with snow, it was called decocta. Juvenal, in Sat. v. V. 50, celebrates this mode of cooling water; and Martial, Lib. iv. Ep. 116, distinguishes this water by the appropriate name of *nobile frigus*.

§ Horace Walpole, Earl of Orford, seldom tasted any liquor at dinner time, but iced. A pail of ice was placed under the table, in which stood a decanter of water, from which he supplied himself with his favourite beverage. This his guests would occasionally share, and found it a delicious refreshment, diffusing the genial warmth imparted by liquors, without any of their subsequent heating and pernicious effects. It is indeed surprising, that this luxury of every por-

3. The nature of distillation is now generally known. If the steam or vapour arising from water, when in a boiling state, be collected and condensed by proper instruments, the water which is thus produced, is so uniform, as to have become a standard of weight.

Distilled water, on account of the trouble of procuring it in large quantities, is seldom employed to any extent, either in the preparation of food, or as drink; but in a great variety of chemical processes, and for preparing many medicines, this species of water is an essential requisite. Heberden was of opinion, that a course of distilled water, might be as beneficial, in many chronic pains of the stomach and bowels, as the most celebrated mineral waters are in other disorders; and hence, that it might prove no inconsiderable addition to the Materia Medica *.

Some instances are recorded, of persons having used distilled water as their common drink, who are said to have found benefit from it †. It is apt to acquire however, a bad taste from the still ‡; and if any vegetable essential oil be in the water when boiled, it will remain in it, at least after a single distillation. It loses also, in a great measure, both its atmospheric and fixed air, and hence becomes extremely vapid. On the whole, from the objections above alluded to, there is very little chance of distilled water ever coming into general use. At the same time, the sentiments of the judicious Heberden are entitled to attention, who recommends distilled wa-

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ter in Naples, should continue so rare in other countries. If Mr Walpole's guest liked even a moderate quantity of wine, he must have called for it during dinner, for almost instantly after he rang the bell to order coffee up stairs.—Vol. i. p. 42, *Biographical Sketch*. His iced water, he not only regarded as a preservative from cold, but he would sometimes observe, that he thought his stomach and bowels would last longer than his bones, such conscious vigour and strength in those parts did he feel from the use of that beverage.—*Walpoliana*, vol. i. *Biographical Sketch*.

* A medical practitioner of eminence, in one of the principal towns in Kent, ascribed his relief from dyspeptic affections, under which he had long laboured, to the constant use of distilled water, to which he was led by the work of Dr Lamb, whose observations on water are very interesting.

† Tournefort mentions one Francis Secardi Horgo, who made distilled water his only drink, without any addition of wine, or any strong liquor, to the last, and lived, with remarkably good health, to the age of one hundred and fifteen years.—*Heberden on Water*, p. 22.

‡ The empyreumatic or burnt taste in distilled waters, may be cured in various ways. 1. The first gallon, having the most of that taste, should be thrown away. 2. In a month's time, by mere keeping it in perfectly clean glass or stone bottles, thoroughly well stopped, the taste will be got rid of. 3. By ventilating the water, in the manner described by Hales, the taste will also be carried off in a few minutes: Or, 4. By boiling the distilled water in an open vessel the burnt taste will be immediately taken off.

ter to be used in any of our foreign possessions, where the waters are found to be very injurious to health.

4. The idea of filtering water is pointed out by nature itself; for all springs which pass through sand, gravel, &c. undergo that process. It has been found, that if water of a putrid, or unwholesome nature, be filtered through an artificial bed of sand, or a vessel made of porous stone, it will be deprived of its bad qualities*.

Filtering stones, or reservoirs, may either be of a size calculated merely for the use of a single family, or on a scale adapted for a great town.

The smaller sorts of filtering stones, where the water passes downwards, are very apt, in process of time, to be clogged with dirt and other impurities. Filtering stones however, have been contrived, by which the water is forced, by the pressure of the atmosphere, *to ascend through a stratum of sand*, instead of descending, which is a great improvement.

If water be put into a filtering stone, the stone requires to be cleaned, by scraping and brushing, at least every fortnight. But if the stone be immersed into the water, so that the water rises up through it, and is removed by a proper vessel, or drawn out by a syphon, the water never acquires any putrid or musty taste, and a little brushing on the outside once a-year, suffices to keep it clean.

At Paisley, filtering on a great scale was effected, so as to supply a town, containing above 20,000 inhabitants. A similar plan has since been resorted to in Glasgow; and the water of every town, in all civilized countries, ought, where necessary, to be improved in the same way †.

5. Another mode of improving water, and the one that has been most recently discovered, is by means of charcoal, a substance which possesses the property of preserving water from corruption, and of purifying it after it has been corrupted. It has been found, that one ounce and a half of powdered charcoal, and twenty-four drops of oil of vitriol, (concentrated sulphuric acid), are sufficient to purify three English pints and a half of corrupted water, without communicating to it any sensible acidity. If no acid be used, two-thirds more of charcoal powder will be necessary; but when less of that powder is employed, the less is the quantity of water lost in the opera-

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* On this subject a valuable work may be consulted, entitled, "De l'Eau, "relativement à l'Economie Rustique, par M. Bertrand." Lyon, 1764.

† There is a particular detail of this improvement in the Code of Health, 2d edition, vol. i. p. 204, note.

tion, which, in sea-voyages, is a material object. Other acids, and even nitre and sea-salt, produce nearly the same effect; but sulphuric acid is to be preferred. A small quantity of it should be put into the water, before the powdered charcoal is added. If a quantity of charcoal were put into water-casks filled for long voyages, or if the inside of the casks were charred, it would prevent the water from putrefying*. Perhaps the best means of filtering water, is by passing it through alternate layers of sand and charcoal.

6. Water is also improved by means of machinery. It is well known, that, by pouring water from one vessel to another, it is improved; and that the more it is agitated, the more it acquires qualities to be desired †. If therefore, distilled or boiled water were made to pass frequently through the air, by means of machinery, it might be fully charged with the aëriform fluids, of which the previous processes had deprived it. The common mode of impregnating water with fixed air, is troublesome and expensive, and, on that account, never can come into general use. Besides, fixed air is of a very volatile nature, and is not in every case to be taken in large quantities; whereas, the more that water can be impregnated with atmospheric air the better ‡.

4. *On the superiority of Common Water as Liquid Food, and its use as Medicine* §.—We shall conclude our observations on common water, by adverting to some of the eulogiums which have been bestowed upon it, (which is the more necessary, as water-drinking, like many other good old customs, is not now very fashionable); and by briefly alluding to those medicinal properties which it is said to possess.

Pure water, in the opinion of Hoffman, is the fittest drink for persons of all ages and temperaments; and, of all the productions of nature or art, comes the nearest to that universal remedy, so much searched after by mankind, but never hitherto discovered.

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* See Encyclopæd. Britan. vol. xviii. p. 816.

† The Chinese have a practice of agitating the water they are to drink, for two or three minutes, with a bamboo, in the hollow of which they put a piece of alum, by means of which the earthy particles of the water are precipitated.

‡ See Appendix of Receipts.

§ One of the most excruciating diseases, to which the human frame is liable, has notoriously become remarkably diminished in frequency of occurrence, by the increased use of *tea* and beer amongst all classes, superseding, in a great degree, the use of cold water, as the ordinary beverage, namely, the stone. The additional dilution, by drinking so much tea, may have some effect, as well as its precluding the noxious particles of cold water, of certain districts of country, from having their otherwise injurious effects. Neither in our infirmaries nor in private practice, is it supposed, that one-half the cases of stone occur, that did in former years.

Other respectable physicians assert, that in regard to diet, with a view to the preservation of health, no one rule is of so much importance, as to avoid all sorts of compound liquors, water being the only wholesome beverage; the best solvent and diluent of the solid portions of our food; supporting the tone of the stomach, without exhausting its vigour; and furnishing the most simple, and the most suitable supply to the secretory vessels, and general humidity of the body. And it is asserted, that those who use water only, as their general beverage, are, *cæteris paribus*, the most free from disease, and retain the vigour of life, to a more advanced age *.

It would therefore appear, that common water is not only strongly recommended as the best of liquid food, but also, as possessing, in a very eminent degree, many valuable properties in the cure of disease.

This subject was particularly discussed about the year 1724, when two writers published separate works, celebrating common water as the best means of curing fevers, and many other distempers. In these publications, there are certainly some useful hints, though the authors carried their doctrines too far, and relied too much upon their favourite remedy †. Dr Wright and Dr Currie have since ascertained, in the most satisfactory manner, the advantages of applying cold water externally in fevers ‡.

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* In the Miscellanea Curiosa, there is an account of an old man, one hundred and twenty years of age, without the loss of a tooth, and of a brisk and lively disposition, whose drink, from his infancy, was pure water. A famous civilian, likewise, Andrew Tieraqueaus, who is said, for thirty years together, to have given yearly a book, and, by one wife, a son to the world, never drank any thing but water from his infancy; and Faust, in his Catechism of Health, pointedly observes, that if water were the only drink of man, both his health and fortune would be improved. A most respectable and useful public character, (Baron Voght), states in a letter to the author, dated Hamburgh, 27th December 1832, "That he is now in the 80th year of his age, yet enjoys good health, *because he lives upon vegetables, and drinks nothing but water.* By the adoption "of that plan, the powers of his mind remain unimpaired, and he is able to work "ten hours a-day." There cannot be a stronger proof of the benefit to be obtained, from the adoption of that system.

† See "*Febrifugium Magnum*, or Common Water the best Cure for Fevers, &c. By John Hancock. D. D." 7th edit. 8vo, 1724. Also, "The Curiosities of Common Water, &c. By John Smith, C. M." 7th edit. 8vo, 1724. Both these tracts were translated into French, and published in one volume 8vo, anno 1725. A voluminous author attempted to refute these publications in a work entitled, "A New Treatise on Liquors," &c. By James Sedgwick, apothecary, one volume 8vo, printed anno 1725. Dr Peter Shaw also wrote a curious tract upon the subject, called "The Juice of the Grape; or, Wine preferable to Water. By a Fellow of the College." 8vo, printed anno 1724.

‡ See Appendix, where the author's modes of applying cold water, in the cure of feverish complaints, and other disorders, shall be explained.

2. *Milk.*

This is one of the most valuable presents that nature has bestowed upon the human race. It is intermediate between animal and vegetable food, affording a quick supply of nourishment; and as, on being swallowed, a portion of it is instantly coagulated in the stomach, it partakes of the nature of both solid and liquid aliment.

It is impossible, in a work of this nature, to enter much at length into this extensive subject. It may be sufficient shortly to consider, 1. The nature of milk; 2. The different kinds of milk which are made use of in diet and medicine; 3. The various modes in which it is prepared as liquid food; and, 4. Miscellaneous rules, to be observed regarding its consumption.

1. All milks are divisible into three ingredients, *cream, curd, and whey.*—1. *Cream,* when milk is allowed to stand, separates itself, and, from its lightness, rises to the top. Cream, according to Berzelius, is a compound body, consisting of butter 4.5, cheese 3.5, and whey, 92 parts. There are also certain salts held in solution by the whey of cream, so that this portion of milk contains about 12½ *per cent.* of solid matter. By agitation, cream can be subdivided into butter and milk.—2. *Curd.* Various articles on being mixed with milk, separate it into a solid substance termed curd, and a fluid called whey. This change may be effected by alcohol, gelatin, and all astringent vegetables; by gum, sugar, acids, and many neutral salts; but it is most interesting to know, that the natural coagulator of milk is the digestive fluid of the stomach, called *gastric juice.*—3. *Whey* is the third natural ingredient, into which milk is easily separable.

2. A variety of milks have been used in diet and medicine. For infants, the milk of the breast is unquestionably the best*. Of all the inferior animals, the milk of the cow is in most general use, and has been included among the principal articles of diet, in every age and country in which the cow exists. Mares' milk was, among the ancient Scythians, and still is with the modern Tartars, a very important part of their subsistence. In many cases, mares' milk alone has acted as a strengthener and a restorative, and it has proved highly beneficial at the commencement of pulmonary consumption. The milk of the ass †, and of the camel, and in the northern

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* See Appendix of Receipts.

† In the milk of the ass, the proportion of whey is very great, and of oil and cheesy matter very small; hence it is light, and well suited to weak stomachs. It

countries, that of the goat, is principally employed for medicinal purposes; but in southern climates, the goat furnishes such quantities of milk as to admit of its being used as food. Sheep give milk only in small quantities; and where the flocks of that valuable animal are properly attended to, they are never milked, but for two or three days after the lambs are weaned. Formerly, the milk of the sow was in request, and considered useful in some disorders *.

3. The principal modes in which milk is used, are, 1. In a raw state; 2. Boiled; 3. Sour milk; 4. Cream; 5. Buttermilk; 6. Whey; and, 7. After fermentation.

1. *Raw Milk.*—The sooner milk is taken after being drawn, if to be used in a raw state, the better. There is reason to believe, that one of the principal advantages of sucking, arises from the circumstance of the milk being swallowed unaltered by the air; as the atmosphere speedily makes a great change upon this delicate fluid. The excellence of milk depends upon the mixture of the three substances of which it principally consists; but, as soon as the air acts upon them, so as to separate the cream from the rest of the milk, it is no longer the same homogeneous substance, nor can its compound ingredients be ever again perfectly united. When infants therefore, are nursed on cow or other milk, it is of the greatest importance, to give it directly from the animal. If this be not possible, it ought to be carefully covered, and kept warm, by placing the vessel containing it over boiling water. This is always attended to, when asses' milk is given as medicine, and is probably one great cause of the good effects arising from it. In taking raw milk, some find the addition of sugar necessary; and this is of use, when it is taken by those who have weak stomachs, or who are recovering from sickness. Conserve of roses, is a delicate and palatable addition to milk fresh from the cow, when taken medicinally.

2. *Boiled Milk.*—If milk have stood for some time, the only mode by which its ingredients can be restored to any thing like a state of union, is by boiling. Some imagine, that when milk is boiled and sweetened with sugar, it is more digestible than when raw, being thus deprived of a considerable quantity of its air, which lessens its tendency to acidity and fermenta-

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is best in spring and summer; but it is neither so light, nor so salutary, when the animal is supported on dry food. If taken early in the morning, from its cooling quality, it is excellent in all disorders where the patient is troubled with an insatiable thirst. Hart's "Diet of the Diseased," p. 204.

* Hart's "Diet of the Diseased," p. 203.

tion; and Hippocrates gave boiled milk, diluted with considerable quantities of water, even in mild fevers *. Milk in general, is apt to induce costiveness, and when boiled, it is still more constipating †.

3. *Sour Milk.*—In warm weather, and in hot climates, sour milk is used with bread or rice. Mixed with sugar, it forms an aliment in some degree nourishing, and is agreeable and cooling ‡.

4. *Cream.*—There is no food more improper for weak stomachs than cream. It is exceedingly difficult of digestion; and when taken too freely, is very apt to disorder the bowels. But to such strong stomachs as can digest it, it is probably highly nourishing.

When cream is eaten with preserves or fruit during dinner, and followed by wine, it is extremely apt to produce a fit of indigestion.

In some countries, as in the western parts of England, the cream is not suffered to rise naturally, but is gathered from milk after it has been thickened by a moderate fire; and this *scalded* or *clouted cream* as it is called, is considered to be less offensive to the stomach, and to be more nourishing than the natural cream.

5. *Butter-milk.*—After the oily ingredient of milk is extracted by churning, there remains a substance, known under the name of butter-milk, which many consider as an excellent article of diet, and of great use in colds, consumptions, and other disorders of a similar nature. Its nourishing quality however, must depend on the manner in which the butter is made. When that article is manufactured from cream alone, little remains but the vapid refuse of an oily substance, which is bitter and unpleasant; but when the whole milk is employed in the process, (as is the case in Ireland), the cheesy part of the milk, in a great measure, remains with the butter-milk, rendering it not only more palatable, but a more substantial article of food.

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* Hart's "Diet of the Diseased," p. 206.

† "Practical Synopsis of *Materia Alimentaria*," p. 14. To obviate these objections, raw milk is sometimes mixed with sugar and magnesia, and the boiled with oat-meal or veal-broth.

‡ It is thus prepared in the neighbourhood of Edinburgh: Milk, when fresh drawn, is put into a barrel or wooden vessel, and is then exposed to a certain degree of heat, generally by immersion of the vessel in warm water: this accelerates fermentation. The serous is thus separated from the coagulable parts of the milk, and the serum is drawn off from the lower part of the vessel; what remains is put into the plunge churn, and after being churned for some time, is sent to market as *Corstorphin Cream*.

6. *Whey.*—When curds are formed for the purpose of being converted into cheese, there remains a liquid, which contains the watery and saccharine parts of milk, in a great measure freed from its oily and cheesy ingredients. This substance is in some degree nutritive, and is distinguished for its diluent and diuretic qualities, passing off easily by the secreting organs of the body *. There is no drink in general more wholesome, or more palatable than whey, especially when it is clarified in the manner practised by the French apothecaries, who sell it, as a diluent, under the name of *petit lait* †.

7. *Milk-wine.*—By the fermentation of mares' milk, the Tartars prepare a vinous liquor called *koumiss*, the ardent spirit of which is derived from the sugar of milk, which is very abundant in the serous part of the milk of mares. Late experiments have shewn, that a similar spirituous liquor may be obtained from the milk of other animals.

4. There still remains a variety of miscellaneous rules and observations on the subject of milk, of which the following are among the most important:

It is evident, that the quality of milk must depend, not only upon the species of the animal, and the nature, constitution, and age of the individual of that species, but also upon the season of the year, the mode of feeding, the vessels in which the milk may be put, the houses in which it may be kept, and a variety of other particulars, which it is impossible here to enumerate, and which are almost exclusively within the province of the farmer. It may be sufficient here to remark, that a young and healthy animal, fed on natural pasture, and which is not deprived of exercise in the open air, may be expected to give the wholesomest milk.

Among the rules to be observed in regard to the use of milk, *as food*, it may be stated, that when skimmed, it becomes much inferior to milk in its original state. If milk be too heavy for a weak stomach, it is better to dilute it with water, mixing a little sugar with it, than to skim it ‡.

It is a common observation, that milk and fish ought never to be taken at the same meal; at least, that none but strong stomachs can venture upon such a mixture.

We may here mention the instance of a French gentleman who lived entirely on milk. When he went to visit, his can of milk, to which he often had recourse, was placed by him. His appearance was healthy; and by this practice he had attained, with health, an age exceeding that to which his family, owing to an hereditary disease, had reached.

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* Some prefer what is called *two milk whey*, prepared, by taking one part of butter-milk, and two parts of new milk fresh from the cow, and boiling them together.

† See Appendix of Receipts.

‡ "Concise Observations on the Nature of our Common Food," p. 29.

Some unfounded prejudices are entertained against milk, as being injurious to the teeth and to the eyes *, and the constant use of it will, it is said, bring on grey hairs prematurely. On the other hand, the use of milk has long been strongly recommended as a remedy for various disorders, particularly consumption and gout.

In regard to hectic complaints, there can be no doubt, that if milk-diet be used before the disease has taken hold of the constitution, and if it be properly administered, and combined with other judicious rules for the improvement of health, it is likely to prove highly beneficial.

A respectable physician, considers a milk-diet to be an excellent remedy for the gout, if it be uncombined with other disorders †, and contends, that the patient may use it *with almost a certainty of success.* He recommends, that the milk should either be taken immediately from the cow, or made a little warm, by placing the vessel which contains it, over boiling water. He began with small quantities, but afterwards went the length of twelve or fourteen ounces in the morning, twenty-four ounces, with wheaten-bread, at noon, and about twenty ounces at night, half with bread and the other half as common drink. Some sugar, or a little salt may be added to the milk to prevent it from curdling. By living in this manner, for a period varying from six to eighteen months, according to the degree and duration of the distemper, the whole gouty matter is discharged from the body; and if the dictates of moderation and prudence be attended to, the patient may return with safety to his former mode of living.

Lord Gardenstone says, "I have for many years been in the practice, almost every morning, of drinking in bed, about an English pint of warm milk from the cow, mixed with a little sugar, and a table spoonful of good rum, the strength and spirit of which is extinguished, and you taste only its cordial flavour. In place of the sugar, I have long used a table spoonful of honey. It is a most delicious, nourishing and salutary dose. I have often been thanked for this prescription, which

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* Hart's "Diet of the Diseased," p. 205.

† See Dolæus upon the Cure of the Gout by Milk Diet, translated by William Stephens, M. D. F. R. S. Dolæus also considers milk as the best medicine that has yet been discovered for the stone. See p. 101.

I had at second hand from the great Dr Mead, who found in many cases that it was successful, when the milk of asses, or mares, and even of women, had failed. I now therefore set it down for the benefit of others,—to use the words, without the insincerity of quacks."

II. *Of Fluids compounded with Water, but unfermented.*

Pliny has remarked it as a great absurdity, that mankind should bestow so much trouble and expense in making, artificially, such a variety of liquors, when nature has prepared to their hands, a drink of so superior a quality as pure water. But though the use of water is to be recommended, yet all preparations of water are not to be condemned, as either dangerous or unnecessary. In fact, though common water may be well adapted for those who take violent exercise, or are employed in laborious occupations, it may not, in every case, be equally well calculated for the sedentary and the invalid. In regard to the latter, in particular, there are various diseases and habits of body for which mere water cannot be accounted salutary. The great Sydenham says, that young persons may drink water with safety; but he does not consider it to be a proper *general beverage* in gouty cases: when a person has the gout mildly, and only at intervals, small beer, or wine diluted with water, is in his opinion preferable; and, though he expressly forbids all fermented liquors, where the gout is inveterate, yet he strongly recommends dietetic decoctions as better than the pure element *. Some preparations of water therefore, may be safely adopted, whilst there are others not equally well calculated for the use of man.

Among the various fluids compounded *with water* and other substances, but unfermented, the following are most worthy of notice: 1. Decoctions of unground grain; 2. Gruel; 3. Infusions of bread; 4. Infusions of tea; 5. Infusions of sage and other herbs; 6. Coffee and its substitutes; 7. Chocolate; 8. Beef tea; 9. Broths; 10. Soups; and, lastly, Some miscellaneous articles.

1. *Decoctions of unground grain.*—The decoction of pearl, or pot barley, is a common, and useful drink in febrile disorders and affections of the kidneys; and may be made more palatable to some individuals, by the addition of lemon juice, cream of tartar, wine, raisins, milk, &c. as circumstances may admit †. This is a very ancient preparation, being recom-

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* Sydenham's Works, by Swan, p. 492.

† See Practical Synopsis of Materia Alimentaria, p. 74.

mended even by Hippocrates, and preferred by him to every other aliment, in acute diseases. His "*Ptisan*," as that great physician called it, was of two sorts; the first, was a simple decoction of barley and water; the second, was the decoction separated from the barley, and boiled again, after it had remained for a certain time in a cold state; the lighter parts he skimmed off, and called it "*the cream of barley*." As we have, by means of the modern invention of pearl barley, the power of making *this cream*, in greater perfection than the ancients, the practice ought certainly to be continued *.

The decoction of rice or *congee water*, as it is called in India, is equal, as a sick-room beverage, to barley water. It is prepared in much the same manner, and may be rendered palatable, by the same ingredients as those mentioned for barley water.

Groats, as oats are called when prepared in nearly a similar way to pearl barley, afford an excellent material for preparing a drink to invalids. They should be boiled, skimmed and strained.

All of these, and other decoctions and infusions which contain the fecula, mucilage, sugar, and gluten of grain, being apt to ferment and become ascescent, should not be used, after standing forty-eight hours.

2. *Gruel.*—This preparation of oatmeal, is certainly a wholesome article, and is to many persons a very agreeable mess. Dr Franklin was accustomed to take a large bason of warm gruel every morning, to which he added a small slice of butter, a piece of toasted bread, and some nutmeg. The expense of this mess, which was his favourite breakfast, was only three halfpence. He mentions an old Roman Catholic lady, who having disposed of all her property for charitable uses, reserved only twelve pounds a-year to herself, (and even of this small pittance she gave a part to the poor), who lived entirely on water-gruel. On this diet, she never suffered sickness; a proof, how wholesome gruel is, and at the same time on how little life and health may be maintained †. Gruel is an excellent supper, especially for invalids, to which milk may be added if advisable.

3. *Infusions of bread.*—By pouring hot or cold water over toasted bread, a fluid slightly nutritive, containing a portion of gum and starch in solution, is formed, which, while it is refreshing to the sick, is often more acceptable than pure water,

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* See Barry's Observations on the Wines of the Ancients, p. 382.

† Franklin's Life, written by himself, p. 122, 126, and 128.

or drinks containing more nourishment. It is best when made with boiling water, and should be prepared, immediately before being required. Sir A. Carlile considers hard biscuits, toasted brown and powdered, the best ingredient for a beverage of this description, as having the advantage of being free from yeast. Dr Hancock recommends toast and water in strong terms, and adduces the following experiment in proof of its value. He toasted a thin slice of bread carefully, and thoroughly, without burning, put it hot from the fire into a pint of cold water, allowed it to stand a while, and then set it on the fire till it was as hot as tea usually when drunk. He maintained, that five or six cups of this infusion, with or without sugar, were more refreshing, and sooner removed fatigue or uneasiness, than wine, strong ale, small beer warmed, coffee, tea, (for he had tried them all), or any other liquor with which he was acquainted *.

Infusions of other sorts of bread, in particular of toasted oat-cakes, also of dried and of toasted oatmeal, have been recommended †; but the taste of such infusions is not palatable to those who have not been accustomed to oaten-bread.

4. *Infusions of tea.*—No subject connected with diet, has been more frequently discussed; nor is there any one concerning which a greater variety of opinions is entertained, than that of tea, considered as an article of diet. By some it is decried as a poison, while by others it is extolled as a useful addition to our food, and even regarded as a medicine.

Tea was originally imported into Europe for medicinal, rather than for dietetic purposes. It was first used in Britain about the year 1666; and owing to the example of Catharine, the queen of Charles II. who had been accustomed to it in Portugal, it became a fashionable beverage at court. But it would not probably have come so early into general use, had not an idea prevailed among the medical men of the time, that health could not be more effectually promoted, than by increasing the fluidity of the blood, which, it was contended, the infusion of Indian tea, was the best means of effecting. It was in the year 1678, that Bontekoe, a Dutch physician, published his celebrated treatise in favour of tea ‡, to which work, its general use, in so many parts of Europe, is mainly to be attributed.

There are many arguments brought forward in favour of tea.

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* See Febrifugium Magnum, p. 48.

† See Code of Longevity, vol. iv.

‡ Entitled "Tractet von het excellente thruyd Thie."

Were tea deleterious, it is hardly conceivable that it should have been a principal article of diet, from time immemorial, in countries in which the plant is indigenous; and unless it had been found, at least innocent, the use of it would scarcely have extended, as it has done, over the more civilized part of the world, notwithstanding the most violent attacks upon it, by many respectable modern authorities in medicine.

The following virtues have been ascribed to tea: 1. It is said, that while it is a grateful and useful beverage to persons in health, it is a valuable addition to their solid food; and in the opinion of many, it ought to be preferred to fermented liquors, so generally used in Europe. 2. It has the property of correcting the pernicious qualities which some waters possess *. 3. Tea is said to have the effect of increasing the digestive power of the stomach, and hence it is regarded as particularly useful in cases of surfeit and indigestion. 4. It tends to exhilarate the spirits; though like every other stimulus, by constant use, it loses this power. 5. The use of tea has been found salutary in medicine. A weak infusion, without sugar or milk, is an excellent diluent and pleasant beverage in ardent fevers; and as it promotes perspiration, and other secretions, it is frequently taken with advantage in colds, coughs, rheumatisms, headachs, &c. 6. Since the introduction of tea, gravellish complaints have greatly diminished †. 7. The introduction of tea has certainly done more to promote sobriety, especially among the higher ranks, than almost any other circumstance. 8. The pleasing occupation which the tea-table furnishes, the beauty of the manufacture in which this preparation of *liquid cookery* is carried on and circulated, the cheerfulness and lightness of the meal, compared with the solemnity and business-like appearance of a substantial dinner, all tend to make *tea* a favourite beverage. *Tea time* indeed, is perhaps the most pleasant period of the day, in domestic life. Tea may be regarded, as having been, at least one means of expelling the remains of drunken barbarism from among our countrymen; and our ladies, it is to be feared, in banishing from the drawing-room the trouble of tea making, and throwing upon servants, instead of beaux, the polite and pleasing duties which used to belong to them in this civilized meal, have deserted their own cause. It is already *fashionable* for ladies and gentlemen to take tea separately; it little matters therefore, whether the gentlemen go to tea at eight o'clock or at ten, the lady of the house is not incommoded with having *a call for tea.* Let the sex consider this well. Fashions are easily established by the fair. A tea bell, might go a far way to restore matters to their proper footing.

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* The waters of the Seine and the Ness may be rendered safe to strangers, by boiling them with tea, and letting them stand till cold.

† It is stated in Barrow's "Travels in China," p. 349, that the Chinese, notwithstanding their want of personal cleanliness, are little troubled with leprous or cutaneous diseases, and they pretend to be totally ignorant of gout, stone, or gravel, which exemption they ascribe to the preventive effects of tea. Bathing the eyes, with an infusion of tea, is reckoned strengthening to these organs.

Lastly, much as tea has been abused, we would ask, is there any *substitute that would answer equally well so many useful purposes*, or in favour of which, so many arguments can be brought forward *?

The objections which have been urged against the use of tea, are various. 1. It is said, that the tea-leaf, when fresh from the tree, is of a poisonous nature; and that, though it loses some of its acrimony by being steeped, and afterwards dried, yet, even in the state in which it is sent to this country, that it retains many of its narcotic qualities. 2. The astringency of tea, is supposed to render it extremely injurious to the constitution †. 3. The manner in which it is prepared in China, by being dried, partly at least, on copper plates, must, it is thought, render it extremely injurious. 4. The manner also, in which the teas are conveyed to Europe, closely packed up in slight wooden chests, lined with a composition of lead and tin, and liable to be deteriorated by the corrosion of these two metals, must render the article here, much more unwholesome than in China. 5. Not only is the tea itself regarded as a pernicious article, but it has often added to it, both in Asia and Europe, a variety of other substances of a deleterious nature, either with a fraudulent view, or to improve its colour or flavour. Lastly, it is said, that the very mode in which it is consumed in Britain, is more pernicious than in China. According to the eastern method, a small quantity of leaves is boiled in a kettle, with as much water or milk as is necessary; this makes the beverage of an equal strength, weak, and consequently less injurious: but by our mode of infusing the leaves, with smaller proportions of boiling water, the infusion is stronger, and, according to this hypothesis, of course more pernicious.

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* An intelligent author, (see "Practical Synopsis of the Materia Alimentaria," vol. i. p. 100,) gives the following answer to this question: Let those who have been long accustomed to tea, substitute in its place, milk, milk-porridge, gruel, broth, cocoa, or the like, for breakfast, and in the afternoon with milk and water, orgeat or lemonade in the summer, and coffee in winter.

† See "Essays on the Nerves, and on Foreign Teas," by H. Smith, M. D.

Experience seems to contradict all these objections to the use of tea, as it is unquestionable, that the health of the inhabitants of Great Britain has not suffered, since tea became an universal beverage; and, perhaps, it is rather to the abuse, than to the use of tea, that we are to ascribe the bad opinion which many intelligent individuals have formed of it. Of course tea, like every other article of diet, disagrees with some constitutions; and it is certain, that particular teas, if taken strong, prove generally deleterious. It may be useful therefore, to endeavour to lay down some rules on this point.

1. Strong green tea, although like other narcotics and stimulants, exhilarating and refreshing at first, is, with most people, extremely apt to be followed by feelings of depression, uncomfortable nervous sensations, and unnatural vigilance and sleeplessness. It is not very easy to say, to what the different effects of green and black teas are to be ascribed. The green teas, are said to be the leaves plucked, in a younger state, from the same plant; Linnæus, however, has described them as specifically different. It is also said, that one cause of the difference arises from the green teas being dried on copper; if this were the fact, which however is very much disputed, it might account, in some degree, for the symptoms produced by green tea. The first rule therefore, we lay down is, that black tea, for general use, is to be preferred to green. 2. It is of great importance, in making tea, that the water should be of good quality, and in a boiling state. 3. It is better, that the quantity of tea and water to be used at one time, should be put into the tea-pot at once; if more tea be required, a second tea-pot should be used. 4. Sugar and cream or milk, are not only an improvement to tea, but seem to be of use in diminishing its astringency. 5. Tea should not be taken too soon after dinner, which meal should be undisturbed for at least two hours, that the first process of digestion may not be interfered with; tea assists the ulterior stages of this important operation. In the morning, tea should be taken along with the solid nourishment of breakfast.

Although, to those leading an easy life, and little exposed to severe exercise, a tea breakfast is not only agreeable, but perhaps, now-a-days, the best that can be taken; still to individuals who must endure great fatigue, night watching, or severe exercise, a Hunter's *dejeuner à la fourchette*, of meat, eggs and other substantials, with a bottle of ale or porter, will be found better calculated for maintaining the necessary strength and energy of the system, than the more refined breakfast of the city.

Many well-meaning individuals, have regarded the use of tea with so much horror, that they have proposed, that the legislature should fix a tax upon it, which might prove prohibitory of its introduction into this country. Even were such a measure now possible, it is very far from being advisable. Tea has become indispensable to a large proportion of the inhabitants of Great Britain; and it will be found, that whereever its use has extended to the poorer classes, it has proved a blessing, at least morally, as taking the place of spirituous potations; so that instead of interfering with its consumption by taxation, real and unsophisticated teas should be brought within the reach of all classes, by the reduction of the high duties at present imposed upon them.

5. *Infusions of sage, &c.*—It is said, that all the benefits resulting from the use of tea, are owing merely to the hot water, and that it would not be difficult to discover some indigenous substitute for tea; one, in point of salubrity, not only equal, but preferable to that article; of a nature also likely to be generally adopted *. Indeed, the vegetable ingredient, it is contended, is of little consequence, and nothing can be more absurd than to send to so great a distance, for the leaf of a shrub to make a warm infusion, when we have so many shrubs of our own growth, which may be accounted, at least as innocent, if not more salutary. Amongst these articles, the most celebrated are sage and balm.

The virtues of sage were formerly so much extolled, that it was said, "Why do men die whilst sage in gardens grows †?" But like all articles, which have too many virtues ascribed to them, sage has fallen, perhaps undeservedly, into neglect in the present day. It is frequently used by the Chinese in decoction and infusion, as a tonic, for debilities in the stomach, and nervous system. Of the twelve species of sage, the *Tomentosa*, or that which gardeners call the *Balsamic Sage*, is to be preferred to all others for making tea [*]. Sir William Temple recommends it, not only as a wholesome herb for common uses, but as serviceable in consumptive coughs, a draught every morning, of spring water with a handful of sage boiled in it, having in a month cured some very desperate ones [†]. It was formerly considered highly serviceable in palsies, apoplexies, and cold rheumatic defluxions; and it has been remarked, that if it had come like tea, from some remote region, it would probably have been equally prized [‡].

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* This subject is discussed in Willich's Lectures on Diet and Regimen, p. 415, 416, &c.—He commends various herbs produced in this country. It is astonishing, that in a country so full of speculation and enterprise, and where so much money is made by the sale of quack medicines, no attempt, but one, has been made, to introduce domestic teas, namely, Dr Solander's *Sanative Tea.* Some of our strongly aromatic flowers, as the woodroof, excel in flavour the teas of China; and the first leaves of whortleberry, properly gathered, and dried in the shade, cannot be distinguished from real teas.

† "Cur moriatur homo, cui salvia crescit in horto?" Regimen Sanitatis Salerni.—*Code of Health,* 2d edition, vol. iii. p. 24.

Balm is another article, an infusion of which has been used for tea. The species of this herb, called by botanists the *Melissa hortensis*, or Garden Balm, is preferred for medicinal or dietetic purposes. As a medicine, it is reckoned cordial, and beneficial for all disorders in the head and nerves; and even as tea, according to Miller, it is greatly esteemed. One or two examples, are not sufficient to establish any particular system; but it is asserted, that John Hussey of Sydenham, in Kent, who lived to the age of 116, breakfasted for fifty years, on balm-tea, sweetened with honey; and herb teas were the usual breakfast of Fluellyn, Prince of Glamorgan, who died in the 108th year of his age [§].

Infusions are also prepared, in the same manner as tea, from juniper-berries, aniseed, fennel, coriander, the leaves of betony, rosemary, and other herbs. These are drank either with or without sugar [‖].

Among other infusions, that of ginger has been strongly recommended, more especially in gouty cases; and it is contended, that ginger tea, with a large addition of milk for breakfast, is preferable to Chinese tea as at present taken [¶]. The best Barbadoes white ginger, should be powdered rough in a mortar, and a tea-spoonful taken in boiled milk, either to supper or breakfast. The quantity may afterwards be increased to two, or even three drachms [**].

6. *Coffee and its substitutes.*—Among the various articles of foreign growth, introduced into general use in Europe [††], there

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[*] Miller's Gardener's Dict. Salvia.

[†] Hart's Diet of the Diseased, p. 56.

[‡] Easton on Longevity.

[§] Vide Appendix. Sage Tea.

[‖] It is said that the flowers of the Linden tree (the lime, *tilea europea*), are used at Paris instead of tea, more especially by ladies subject to headachs.—*Pinkerton's Recollections of Paris*, vol. i. p. 233.

[¶] Manual of Health, p. 311.

[**] See Appendix of Receipts.

[††] Lord Bacon is the first Author who mentions coffee. In his History of Life and Death, (see the chapter on the Operation upon the Spirits, No. 25,

is none, tea excepted, that has occasioned more discussion regarding its properties and virtues, than coffee. The rancour with which it has been attacked, seems however, to have little justice in it, for although, no doubt, like every good thing, coffee produces injurious effects on certain individuals, it may be considered as a very valuable article of diet. It is more stimulating than tea, and if taken immediately after a meal, it will, with many, be found to forward the operations of the stomach, and will even assist some weak stomachs in digesting fatty and other matters, difficult of assimilation, which, without its assistance, might produce much inconvenience. It is perhaps from this quality, that coffee has become so important, as an after-dinner beverage, in France, where the nature of the diet, renders such assistance, as it affords to digestion, necessary. But it must be kept in mind, that in delicate habits, coffee often occasions want of sleep, tremors, and many of those effects usually called nervous. It seems to be generally admitted, that coffee possesses the power of counteracting the effects of some narcotics; and it is, for this quality, used by the Turks, to abate the influence of the inordinate quantities of opium they are accustomed to swallow.

Coffee, when not too strong, is a wholesome, exhilarating, and strengthening beverage. It enlivens the spirits, quickens the memory and fancy, and thence is a favourite drink with poets, authors and statesmen. When taken to assist digestion, it should be strong, and prepared by infusion, as decoction dissipates its aroma; and with the exception of sugar, or rather sugarcandy, it should have no addition made to it. When taken as an article of diet, the addition of milk is not objectionable. Strong coffee, generally proves stimulating and heating, creating thirst, and producing watchfulness. The German physicians, complain as much of the bad effects of coffee on their countrymen, as some do among us of tea. Such opinions however, are rather to be ascribed to the abuse, than the temperate use of coffee; as there can be no doubt, that excessive indulgence in this, as in every other stimulant, may produce very injurious effects on the digestive organs.

The best coffee is still imported from Mocha. It is said to owe much of its superior quality to its being kept long. Housekeepers and shopkeepers ought to attend to this; and it must

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Code of Health, 2d edition, vol. iv. p. 163), he says, " The Turks use a kind of herb, which they call Caphe, which they dry and powder, and then drink it with warm water; which, they say, doth not a little sharpen them, both in their courage and in their wits; notwithstanding, if it be taken in a large quantity it affects and disturbs the mind."

It is supposed that coffee was first used in England about the year 1652.

be remembered, that it is necessary to keep coffee at a distance from spices and aromatics, as these are apt to injure its flavour. Coffee ought not to be toasted and ground, until immediately before decoction or infusion.

Various articles have been made use of as substitutes for coffee, as torrefied rye, mixed with a few almonds; this has been manufactured into a substance, which it is almost impossible to distinguish from true coffee *. In Germany and Sweden, the root of chicory is used among the middling and lower ranks, and has been sanctioned by the governments of those countries, with a view to diminish the importation of a foreign article, of such general use as coffee. Wheat, barley, pease, dried carrots, and the common bean, have also been tried; but they have little resemblance to real coffee, except what they acquire from their burnt taste, and empyreumatic oil. A coffee made of acorns, is much recommended in asthmatic and spasmodic complaints; but as it is far from being wholesome, too much caution cannot be employed in the use of it †.

7. *Chocolate* is the cocoa nut, with a mixture of sugar, milk, or eggs, reduced to paste; but it is often mixed with various aromatics, particularly *vanilla*, by which it is rendered heating and unwholesome. When prepared for use, it should be merely dissolved in hot-water, as boiling renders it still more indigestible. It may be tried as a restorative in cases of emaciation and consumption, and it may possibly be of use to old and weakly people ‡; but it is too rich for common aliment. Chocolate yields so much nourishment, that where it agrees, it may almost supply the place of solid and fluid food. When first introduced into Europe, whole volumes were written on its manifold virtues. It has however lost its reputation since it became better known. It contains oleaginous matter, difficult of assimilation, and ingredients injurious to the system generally, so that it is highly objectionable as an article of common diet.

Cocoa is a good substitute for chocolate. It is not so oppressively nutritive, and as it contains less oily matter, is less likely to disagree with the stomach.

8. *Beef tea* is often a valuable means of administering nourishment to invalids. It must be remembered however, that

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* This article has lately become well known under the name of "*Hunt's* "*Economical breakfast powder.*"

† Willich's Lectures on Diet, p. 420.

‡ It is observed, that chocolate-makers are troubled with dry asthmas, and disorders in the lungs; but it is not owing to the effluvium of the chocolate, but to the fumes of charcoal used in the making of it.

it is in cases in which the object is to restrict to a low diet, that beef tea is to be administered; and that in cases, when much nourishment is necessary, and in which the stomach requires to be strengthened, a diet, the principal part of which is infusions of animal food, will be very far from answering the purpose.

9. *Broths and Soups.*—Among the articles of *liquid food*, broths and soups ought not to be omitted. If properly made, they are valuable articles of diet; but should not form the principal portion of dinner.

It would appear to be a law of digestion, that the stomach should have presented to it aliment, to a certain extent, in a solid shape. The young animal, living entirely on what appears liquid food, has a power within its own stomach, of converting a considerable portion of milk into a solid form. And there is reason to believe, that when a liquid, holding the gelatin and albumen of animal food in solution, is taken into the stomach, a similar process takes place. Thus, the gastric juice will decompose soup or broth, and form chyle out of the more solid ingredients, while the watery parts, being thus separated, will be speedily removed, by the absorbent vessels of the stomach. But as it is necessary, that the stomach should have solid matter to act on, those who attempt to live entirely on liquid food, of the nature of broths or soups, run a great risk, of seriously weakening their digestive powers. In Scotland, where broth is in higher estimation than in England, they obviate the bad effects of living on food too much in a liquid shape, by introducing vegetables into the broth, and by eating a quantity of bread or potatoes along with it. As it will be necessary to advert to this subject, in a future portion of the work, to which its consideration properly belongs, we shall only add, at present, that a diet consisting entirely of soups, can never safely be recommended in dyspeptic cases, as, although more digestible to a weak stomach, it increases the evil which it should be the object to remedy. A portion of broth or soup, at a meal, however, may be safely taken, and may be regarded, indeed, while it forms a pleasant portion of dinner, as useful to most individuals *.

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* "In the *first* place, no digestion can go on while the stomach is full of liquid. M. Magendie, a French physician, tied the stomachs of living dogs and rabbits at the lower end, so that no liquid could escape, and then made them drink plentifully; when all the liquid escaped, by the pores and vessels, through the coats of the stomach. None of the liquid, indeed, which we take is properly digested, as it seems to pass into the blood through the coats of the sto-

No individual has paid more attention to the improvement of cookery, for the benefit of the poor, than Count Rumford. In his economical and philosophical essays, he strongly recommends the use of broths and soups, and has given a variety of forms for making them cheap, nourishing, and wholesome *.

10. *Miscellaneous articles.*—Among these, *capillaire* may be mentioned. It is a rich syrup mixed with lemons, which may be diluted either with spring water or milk; and forms a pleasant drink, especially during the hot seasons of the year. *Lemonade* answers nearly the same purpose. *Orgeat*, which is made of pounded blanched sweet almonds, a few bitter ones, with clear spring water, and a table-spoonful of orange-flower water, properly diluted, is a pleasant beverage, and is used in France medicinally.

Sugar and water is a very common drink in Paris, where it is reckoned extremely wholesome, being said instantly to alleviate slight indigestion, or uneasiness of the stomach, to obviate the effects of an extra glass of wine, and, if taken at the beginning, to cure a cold.

Imperial, is a solution of cream of tartar, flavoured with lemon-peel. It is useful in fevers, and other cases where thirst

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mach, while the solid food is digested, and passes on to the intestines. In the *second* place, Dr Wilson Phillip fed dogs on the strongest beef-tea and strong broths, till they became, in a few weeks, much emaciated, and at last died by sheer starvation, though they had as much of this supposed nutritive food as they could take. Nothing could more clearly prove the opinion than this. We wish the experiment had been confined, cruel as it is, to brute animals.

"The Milbank Penitentiary, for the reformation of criminals, has lately witnessed a still more cruel experiment of the same kind. The Committee, ignorant, it appears, of the above proofs, and adopting the erroneous opinions of the nourishing properties of soups, began a Count-Rumford scheme of economy, by putting the prisoners on a soup diet, and allowing them no solid meat. The daily allowance was, formerly, to each twenty ounces of bread; three and a half ounces of dressed meat; one pound of potatoes; one pint of broth; and two pints of gruel or porridge. The new scheme was nine pound three ounces of bread, or eighteen pounds six ounces of potatoes, per week; six and a half pints of gruel; twelve and a quarter pints of broth, made with two ox-heads, for every 220 persons. If one ox-head, therefore, be reckoned at nine pounds of meat, it will give a daily allowance of two ounces and two-thirds of an ounce of meat, made into broth for each couple. This diet was soon productive of those terrible diseases of debility, the sea-scurvy, bloody flux, and weakness of sight. At present there are no less than 200 patients out of 850 convicts; and, since January, 37 have actually died. When any of these unfortunate wretches are, for misdemeanours, put upon bread and water, the consequence of their previous starvation upon soup and gruel, soon produces actual famishing. A case of this kind was lately tried at a coroner's inquest, and the jury brought in a verdict of starvation."—*Oracle of Health*, vol. i. p. 18. (The convicts have, since this was written, been removed from the Penitentiary.)

* Vide Appendix of Receipts.

is an urgent symptom; but is never to be thought of as a common drink, having a tendency, not only to derange the stomach, but to injure the bowels; and has been known to produce serious irritation in the kidneys.

3. *Of Fermented Liquors.*

Men, in every age and country, have been anxious to discover drinks more agreeable than water; and even the most barbarous nations, have been found to possess the means of preparing intoxicating liquors.

We need, however, scarcely be surprised, that methods of manufacturing intoxicating drinks, should be known, wherever man exists, fermentation being as much a natural process, as vegetation itself; while, in hot countries, it is of more constant occurrence, and takes place in a more evident way, than in the more temperate climates. Thus, the fluids contained in certain fruits, and the juices of certain trees, and other articles, which, in their unfermented state, are a pleasing and harmless drink, become, after a few hours' exposure to a tropical mid-day heat, intoxicating liquors. Man therefore, in the earliest state of civilization, had, in such countries, fermented liquors, almost prepared to his hand; and he was, we may believe, soon taught the process, by which he might render other vegetable fluids and infusions, capable of ministering to his depraved appetites.

When, therefore, we consider, that the world was peopled from the hotter regions of the globe, we shall not be surprised, that the preparation of fermented liquors, should have been understood, in every nation, from time immemorial.

Few articles of diet, have had more said for and against them, than wines and spirits; and it is not necessary, that we should discuss, at present, the merits of the different opinions held on this subject, by the various individuals who have treated of them. To us, it appears, that it is the abuse, rather than the use of stimulating fluids, which ought to be decried, the results of fermentation, being as much the property of man, as any other natural process; and we regard the use of wine, under proper restrictions, both in health and in disease, as one of the appropriate uses of the process of fermentation. In health, fermented liquors are capable of strengthening and exciting the spirits, and in many diseases, they are a most valuable medicine. It may be observed however, that the use of wine, seems more appropriate to the constitution of those advanced in life, than to the young*, although, as most physicians know, wine is the sheet anchor, in the treatment of some of the deranged conditions of a child's system.

The best classification of wines is into red and white, as this difference of colour, denotes an important distinction in their nature and preparation; the colouring matter of wine, is derived from the husk of the grape, which communicates, in addition to the colour, astringency to the wine, a point of the highest possible importance, with reference both to the stomach and bowels.

Fermented liquors may be considered under the following general heads, namely, 1. Wine produced from the grape; 2. Wines made from other articles; 3. Cyder; 4. Perry; 5. Malt liquors; 6. Spruce beer; and, 7. Honey liquors.

1. *Wine.*—So extensive a subject as that of wine, on which so many volumes have been written, cannot here be treated at any length; but we shall briefly consider, 1*st*, The general nature of that species of liquor; 2*d*, The different kinds of it commonly used; 3*d*, The quantity that may be safely taken; 4*th*, The advantages resulting from its use; 5*th*, The objections which have been urged against it; 6*th*, The means of preventing or detecting adulteration; and, 7*th*, Such miscellaneous particulars, connected with so extensive a subject, as could not well be comprehended under any of the preceding heads.

1*st*, Wine, properly so called, is the fermented juice of the grape, although, in common language, it is used to denote the result of fermentation from any subacid fruit. The difference between the wine of the grape, and that of the fruits of our own country, seems to arise, from the presence of tartar in the former, and of malic acid in the latter.

2*d*, Wines have been classed according to the countries where they are produced, or the properties which they possess; but they may be conveniently arranged under four kinds, *the acid*, *the sweet*, *the mild*, and *the austere*.

The *acid* wines, as the Rhenish and Hock, are the least heating, the most diuretic, and the best calculated for use in hot weather. They pass freely by the kidneys, and are gently laxative. But all thin or weak wines, though of an agreeable flavour, from their containing little alcohol, are readily disposed to become acid in the stomach, and to occasion or increase calculous complaints.

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* The following experiment is curious, with reference to this point: A medical man gave alternately, for a week together, after dinner, a full glass of sherry, to one of his children, and to another, a large orange. So far as this experiment went, it proved decidedly, the injurious tendency of wine at an early age. In the former child, feverish heat was produced, the pulse was exhilarated, the urine was high coloured, and the stools became of an unhealthy character. The other child remained in good health. Having transferred the wine to the child which had the orange, and the orange to the other, he found the same consequences follow.—*Beddoes' Hygeia.*

The *sweet* wines form a numerous class, including many sorts produced in Hungary, Spain, France, Italy, Greece, the Cape of Good Hope, &c.

When these are properly fermented, and have not been adulterated by the addition of sugar, honey, &c. they afford, if taken in moderate quantities, a wholesome article of diet to all, and a valuable medicine to the weak and convalescent *.

The *mild* but stronger wines, such as Burgundy, Sherry, Madeira, including also the best wines produced in Champaign, and other parts of France, are more cordial than the acid ones, and can be taken with safety in greater quantities than the sweet. This is particularly the case with regard to Claret, though this wine is in some degree acid.

The austere and astringent wines, such as Port, are generous and stomachic, and well suited to the generality of British constitutions. They are peculiarly well calculated for cold and moist weather; but they are apt to occasion constipation of the bowels; for this reason however, they are useful in restraining immoderate evacuations, as diarrhœas, and complaints of a similar nature.

3*d*, The quantity of wine to be taken at once, must depend on various circumstances, as the natural strength of the liquor;—whether it is taken pure, or diluted with water;—whether it is the only kind of liquor taken at the time;—or whether it be used as a medicine †,—or indulged in, when partaking in the pleasures of social and exhilarating society.

As a tonic and stomachic medicine ‡, the quantity of wine to be used, should be subdivided into doses; and although at dinner, in such cases, three glasses may be taken, it may be laid down as a general rule, that the dyspeptic should not exceed one glass at one time, and should limit themselves to three or four glasses in the twenty-four hours. As a diluent for solid food, two or three glasses of wine, diluted with three or four parts of water, are sufficient *. As a zest to social intercourse, from half a bottle, to a bottle of generous wine, may be occasionally permitted to persons in perfect health; but it is not advisable, to go frequently to that *utmost limit* of rational indulgence.

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* The celebrated Sydenham preferred Canary to any other wine. He took little more than a quarter of a pint of it immediately after dinner, every day, to promote digestion, and to drive the gout from his bowels.—*Swan's Sydenham*, p. 590.

† Appendix of Receipts.

‡ In regard to wine as a medicine among the ancients, that subject is very fully treated of in Barry's Observations on the Wines of the Ancients, chap. xiii. p. 355. He informs us, that Hippocrates always considered his vinous mixtures, as a principal instrument in his medical regimen, and claims the merit of being the first who applied them to medical uses. He directed three different mixtures of the strong wines, and even diluted the weak with water,

4*th*, There is no subject on which authors have differed more, than concerning the advantages and disadvantages of wine. We shall begin with stating the arguments urged in support of this favourite beverage.

It is believed, that when pure water alone is used at meals, the stomach is supplied with a liquid, which is too soon removed from it by the absorbing vessels; but that, when wine and beer are used, they remain in the stomach, and assist in the digestive processes, as they succeed each other; and hence that artificial liquors in moderation are beneficial †.

The moderate use of wine, is considered conducive to health, having, to many constitutions, the effect of a generous cordial; and it is contended, that those who indulge in the use of it, are less subject to malignant and intermittent fevers: that it has a powerful effect on the organs of digestion, upon the circulation of the blood, and upon the nervous system ‡.

Not only physicians, but even many philosophers, have recommended the use of wine, as a preservative against chagrin, and as a remedy for diseases. Seneca informs us, that Solon and Cato sometimes cheered themselves with wine; a glass of which they considered as tending to produce strength, and as a remedy against many disorders, as well as an antidote to grief. Plato, though severe against the use of wine for the

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p. 363. In fevers, he mentions a composition of one part of old Thasean wine, to twenty-five parts of water; Ditt. p. 268. Hipp. de Morb. lib. 3.

* Dr Cheyne, in his Essay on Health, p. 75, says, that the best strong liquor for weak and studious people, is wine; the best quantity, a pint in twenty-four hours; and the best way of drinking it is, three glasses with, and three glasses without water. Dr Cadogan, in gouty cases, when his patient has recovered health and strength, and can take exercise, admits of a pint of wine only once or twice a-week, for the sake of good humour and good company merely, and not as good for health. Diss. on the Gout, p. 91.

† This is an old observation. In the words of the Salernian school:

> Potus aquæ sumptus comedenti incommoda præstat;
> Hinc friget stomachus, crudus et inde cibus.

‡ Practical Synopsis of the Materia Alimentaria, vol. i. p. 104. See also Valangin on Diet, p. 134.

young, permitted men of forty years of age, to drink it with moderation, and even invites them to take a cheerful glass.

It is singular, that Haller [*], and Hoffman [†], two eminent physicians, both of them men of sober habits, and distinguished for their piety and learning, should consider wine as favourable to the poetic fire; and that the latter, in particular, should call it the Pegasus of poetry. Hoffman also remarks, that those nations who use wine, are more ingenious than other men: and that the liberal arts, or learned studies, nowhere flourish more, than where wine is used.

Without going farther into this matter, it may be sufficient to extract the following lines from a celebrated poet, which seem to give the substance of the whole controversy;

> Nothing like simple element dilutes
> The food, or gives the chyle so soon to flow.
> But where the stomach, indolent and cold,
> Toys with its duty—*animate with wine*
> *Th' insipid stream* [‡].

Even those however, who approve of the use of wine, do it, not only with restrictions in regard to quantity, but also with the strongest injunctions to prevent its being used in youth, and still more in infancy. But although the adage, *Lac senum est vinum*, would seem to give a free licence to the use of wine in advanced periods of life, it is to be feared, that much harm has been done by acting upon this old saying. No doubt those who have been all their lives accustomed to wine, take it with safety, and might, even in many instances, find danger in leaving it off; but there are many individuals, even in these circumstances, who would reap very great benefit, by weaning themselves from wine; and in all cases, in which there are symptoms of an apoplectic tendency, or of determination of blood to the head, wine is to be avoided, as an immediate source of danger.

5. The objections which have been urged to the use of wine, are very formidable.

Wine, it is said, produces more diseases than all the other causes of illness put together [§].

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[*] De Temperamento.

[†] Physiol. lib. xvii. sect. 1-13.

[‡] Armstrong's Art of Preserving Health, book ii. line 420. The poet adds, in behalf of malt liquor,

> Tho' golden Ceres yields
> A more voluptuous, a more sprightly draught;
> Perhaps more active.

[§] Le vin, que l'on peut nommer le sang de la terre, est l'ennemi capital de

When wine is taken in excess, premature old age is the certain consequence. The wrinkled and dejected visage,—the bloated and sallow countenance,—the dim eye,—the quivering lip,—the faltering tongue,—the toothless gums,—the trembling hand,—the tottering gait,—are so many external signs of bodily infirmity; while weak judgment, timidity, irresolution, low spirits, a trifling disposition, and puerile amusements, discover a mind not so much broken by the hand of time, as poisoned by the bowl of excess *.

Exertions of strength, produced by stimulating and fermented liquors, are destructive to health; the natural and salutary means of strengthening the constitution, being *rest*, and *sleep*, with *proper food*, and not stimulants †. For, however useful fermented liquors may be under particular circumstances, it should be recollected, that they *do not furnish an increase of the powers of life*, or ability to produce labour permanently; they only stimulate, and excite to action the powers of the body, without supplying the principle producing those powers. In short, though they may produce, for a short time, more action than otherwise could be excited; yet the consequent debility, becomes a pregnant source of disease, and ultimately destroys the constitution.

6. It is of the utmost consequence, to prevent, or to detect the adulteration of wine; thousands of lives having been sacrificed, to gratify the avarice of treacherous dealers in this important article. A single bottle of adulterated wine, may produce the most dangerous effects, poisoning with disease the course of a whole life. The following test for ascertaining the purity of wine, was invented by Professor Hahnemann, and very properly named by him *liquor vini probatorius:* One drachm of the dry liver of sulphur, and two of the cream of tartar, are shaken in two ounces of distilled water till the mixture is saturated with the hepatic air. The liquor is then filtered through blotting paper, and kept in a close stopped phial.

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ses enfans. — *Tableau de l'Amour*, p. 237. See also Garnett's Lectures on Zoonomia, p. 237.

* See Trotter's Essay on Drunkenness. Every apartment, it is said, devoted to the circulation of the bottle, may be regarded as a temple set apart for the performance of human sacrifices. And they ought to be fitted up, like the ancient temples of Egypt, so as to shew the real atrocity of the superstition that is carried on within their walls.—*Beddoes's Hygeia*, vol. ii. Essay viii. p. 118.—See also Macnish's "Anatomy of Drunkenness."

† Trotter's Essay on Drunkenness, p. 164. Proper food, in proper quantity, is exciting enough for the strong, and without caution, is apt to be overexciting to the weak. Extraordinary stimulants should therefore be reserved for the seasons when the powers of the system begin to flag.—*Beddoes's Hygeia*, vol. ii. p. 38.

If, on sixteen or twenty drops of this fluid being put into a small glass of the suspected wine, it turn black, or even muddy, or if its colour approach to that of a dark red, if it have first a sweet, and then an astringent taste, it is certainly impregnated with some preparation of lead; if again the wine contain iron, it will assume a blue tinge, like pale ink. A sediment of a blackish grey colour denotes the presence of copper or verdigris. If, on the contrary, although the wine becomes turbid, it deposite a white sediment, it is certainly devoid of any metallic impregnation.

Over-sulphurated white wines produce very heating and dangerous effects; but by immersing in the wine a piece of silver, this adulteration is easily detected, as the metal immediately turns black *.

7. The following miscellaneous observations do not belong to any of the preceding heads.

New wines are by many objected to †, as being liable to produce acescency in the stomach, heartburn, and violent cardialgia, and the acid matter, by passing into the intestines, is apt to occasion colic and diarrhœa.

Very old wines, on the other hand, though by some deemed more palatable, and formerly preferred by connoisseurs, are certainly not more wholesome. It is not however the fashion of the day to prefer very old wines.

As circumstances may arise, in which it is necessary to drink more wine than the stomach is accustomed to, good claret is perhaps the safest that can on these occasions be indulged in. It is less astringent than port, its effects sooner pass off, and this wine in excess, is followed by fewer disagreeable consequences than the stronger bodied, or lighter and more acid wines. White wines however, agree better with some constitutions, particularly with those who are habitually costive.

The low and small wines are too frequently impregnated with poisonous qualities extracted from lead, and in this country at least, ought to be cautiously avoided. It is said to be owing to the use of these weak, but cheap wines, that the lower class of people, in the wine countries, have the

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* See Dr Molleson's Observations, Code of Health, 2d edit. vol. ii. p. 42. —On this interesting part of the inquiry see Quincy's Lexicon Medicum, by Hooper, voce *Wine*; also Willich's Lectures on Diet and Regimen, p. 401.

† Cornaro, however, found, that new wine agreed best with his stomach. He was obliged, from a peculiarity in his constitution, to give up drinking wine from the beginning of July to the end of August; but a moderate quantity of new wine had power sufficient to restore him, in two or three days, to his former health and strength. He therefore calls wine the milk of old age. See Code of Health, 2d edition, vol. ii. p. 106.

sallow and half-starved appearance, which distinguishes them from their richer neighbours, and from those of their own rank in northern nations [*].

The following rules, laid down by Galen, regarding the use of wine by those advanced in life, are curious:

He considers that wine which is strong and diuretic, best *for old people;* it should be strong, in order to diffuse a proper heat over their cold limbs; and diuretic, to carry off any superfluous humours, which, by remaining in the body, might become injurious to their health. He advises the old, therefore, to choose their wine of a light thin body, because he considered them diuretic, and of a pale or yellow colour, because such were the strongest; and that they should abstain from thick, black, or astringent wines, as being apt to cause obstructions in the bowels. Nor does he regard sweet wine good for old men, unless they require rich wines to nourish them; in which case, the generous, pale, or yellow kind were to be chosen [†].

It was observed by Hippocrates, that wine, diluted with water, was more friendly to the head, breast, and urinary passages; while wine alone, or mixed with very little water, agreed best with the stomach and bowels [‡].

The ancients, it appears, sometimes mixed salt water in their wines; Hippocrates mentions this practice as not unusual in his time; and Cato recommends that the sea-water should be taken up at a great distance from the land, and kept in a cask for some time, until depurated [§]. Pliny tells us that the advantages of this addition to wine were accidentally discovered, by a servant stealing some wine, and filling up the vessel with sea-water, and that the wine to which this addition had been made turned out of superior quality [||].

The ancient wines were thicker, or more *inspissated*, than those of the modern [**]. The Maronian wine was so much distinguished for its superior strength and substance, that, according to Homer, it required twenty parts of water to dilute it properly.

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[*] Falk's Guardian of Health, p. 146.

[†] Code of Health, 2d edit. vol. ii. p. 144.—Sherry answers best this description. It is particularly necessary for old people to be attentive to the wine they drink. Cornaro found his strength declining, when the wine he commonly made use of began to be depraved, and to want its usual spirit.

[‡] Code of Health, 2d edit. vol. ii. p. 50.

[§] Barry on the Wines of the Ancients, p. 55, and 59.

[||] Nat. Hist. lib. xiv. c. 8.

[**] The thickest wines in modern times, are those of Hungary. They are made of the juice which exudes, without pressure, from very ripe grapes.

Such were the wines, to quench whose fervent steam,
Scarce twenty measures from the living stream,
To cool one cup sufficed.—*Pope's Odyssey*, book ix.

The ancients had a custom also, of cooling their wine with snow. Xenophon says, it was necessary to procure snow to cool their wines in summer, which otherwise could not be drunk with any pleasure. A mixture of hot water of the purest kind, with wine, in just proportions, and afterwards cooled in snow, was regarded as an elegant and salutary preparation; for it is well known, that water which has been boiled, if immersed in snow, will acquire *a more exquisite degree of coldness*, than when immersed in its common cold state *.

The celebrated Sydenham, who thought water alone, crude and pernicious, considered wine, well diluted with water, as a safe drink, particularly to those afflicted with gouty complaints †. It is more necessary for wine drinkers to adopt this plan in England, than on the Continent; because, in wine countries, there is a variety of weak wines, which may answer as a general beverage; whereas the wines we import, are not only of a strong quality, but are frequently rendered more powerful, by the addition of spirits in the *wine-cellar manufactory* of this country.

Another mode of mixing wine with water, is in the well-known beverage called *Negus*. The addition of lemons or of Seville oranges and spices makes it diuretic and stomachic;—oranges being reckoned more wholesome with red wine.

The author himself has found very great benefit in using sherry and water, in the proportion of one part of wine, and two parts of hot water, the mixture being allowed to cool till slightly tepid. The water should be heated, as the wine does not combine so well with cold, as with hot water. He has long used this mixture, and nothing else, as his regular dinner drink; and if nearly eighty years can give authority on such a subject, he thinks he may safely recommend this mixture, at least to those advanced in life.

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* Barry on the Wines of the Ancients, p. 169.—It is a curious fact, that the ancients were at first accustomed to put snow and ice *into* their wine; thus vitiating it by the impurities contained in the ice. Nero, however, invented the mode of immersing the vessel, which contained the wine mixed with boiled water, into snow, by which means it quickly received an intense degree of coldness. Pliny says, that Nero valued himself more on this improvement in luxury, than Augustus did for all the encouragement he had given to the fine arts.—*Barry on Wines*, p. 137, lib. li.

† Swan's Sydenham, p. 472 This plan of mixing wine and water, as has been already observed, was a favourite practice among the ancients. Hence Bacchus was called *Rectus*, because he first introduced it, having taught a certain king of Athens to dilute his wine with water; men who, through drinking, staggered before, by mixing water with their wine, began to go straight. It is also said, in ancient mythology, that the jolly god was educated by the Naiads or the nymphs of the rivers and fountains; implying, that men ought thence to learn to dilute their wine with water.

On the whole it may be observed, that it is very far from being necessary to lay down abstinence from wine as a general rule. No doubt, to many constitutions, wine proves hurtful; but to others, it is an effectual means of maintaining health and strength. Experience is here, as in all similar cases, the surest guide.

2. *Wines not the produce of the Grape.*—A vinous liquor may be procured from the juice or infusions of currants, raspberries, gooseberries, cherries, oranges, raisins, birch, alder, balm, cowslip, &c. Various receipts have been published for making these kinds of wines, for which books on cookery may be consulted. It was formerly the fashion among physicians, to reprobate home-made wines as unwholesome, but they are only so, when their fermentation is not well conducted, or when they are used before they have attained a proper age. If these points be attended to, they are often, when made in private families, preferable to the foreign wines in common use, being at least free from adulteration *. The only observation that occurs to us as necessary on this subject, is, that a proportion of raisins may, with advantage, be substituted for a part of the sugar generally used, and that the natural juice of the fruit, should be as little diluted as possible.

3. *Cyder.*—The juice of apples, made vinous by fermentation, is known under the name of cyder, or *apple wine*. It is a wholesome liquor, when properly manufactured, provided it is used with moderation. The best proof of the wholesomeness of cyder, is the following: Lord Bacon mentions eight old people, some of whom were nearly, and others above a hundred years of age, who had never used any drink but cyder, and who at that age had much of the strength and activity of youth remaining. Cyder is sometimes, from being kept in leaden vessels, and perhaps from having undergone acetous fermentation, the source of painful and dangerous colics; but this, of course, is not the fault of the liquor, but the consequence of neglect. If drunk to excess, the intoxica-

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* See Nisbet on Diet, p. 118. Adair's Medical Cautions, p. 248; also, his Essay on Diet and Regimen, p. 46. In the Transactions of the Caledonian Horticultural Society, there are some important observations on the manufacure of home-made wines, by Dr Macculloch of Woolwich.

tion it occasions, lasts longer, and is more injurious to health, than that from wine *.

Cyder, it must, at the same time, be acknowledged, is too often ill fermented, and impregnated with much undecomposed acid; for the apple yields but a small quantity of saccharine matter, at least not sufficient to overcome, by its fermentative qualities, the whole of the malic acid, which abounds in the fruit, and to convert it into a vinous spirit †.

This objection might be obviated, by the addition of raisins, honey, or sugar, in moderate quantities. In America, cyder is reckoned perfectly wholesome.

Dr Rush has given a receipt for making from apples, what he calls *Pomona wine* ‡. Two barrels of cyder fresh from the press are boiled down to one, and afterwards fermented. If kept for two or three years, in a dry cellar, this affords a liquor, which, according to the quality of the apple from which the cyder is prepared, has the taste of Malaga or Rhenish wine. In summer, mixed with water, it is a pleasant drink.

4. *Perry*—is the fermented juice of the pear, and, when properly manufactured, is a pleasant liquor; indeed, after it has been bottled for some time, it much resembles champagne.

Perry, if properly fermented, and of a proper age, is, in general, reckoned a safer liquor than cyder, as possessing less acidity. It is, with the addition of some distilled spirits, considered capable of counteracting the ill effects of poisonous fungous productions. Liquors of this kind, which are liable to produce flatulency and acidity, are thought to be much improved by the addition of sugar, and of nutmeg, ginger, and other spices §.

It must be kept in mind however, that cyder and perry are extremely apt to pass into the acetous fermentation. They should therefore be prohibited to those who are subject to dyspeptic affections.

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* Lemery on Foods, translated by Hay, p. 347.—Valangin on Diet, p. 131.

† See Rush's Inquiry into the Effects of Ardent Spirits, p. 21. Frosts occurring late in spring often deprive the Americans of their apples. To obviate this calamity, they give their orchards a north-west exposure, so as to check vegetation. And when they expect a night of frost, they kindle large fires of brushwood or straw, to the windward of the orchard. This easy expedient has, it is said, often preserved the fruit, which otherwise would have been lost.—*Ditto.*

‡ In the Lancashire Agricultural Report, by Dickson and Stevenson, p. 434, there is a receipt for making cyder with honey, so as to produce a liquor of excellent quality.

§ Nisbet's Practical Treatise on Diet, p. 317. In Normandy, they make a spirituous liquor both from cyder and perry, which is much esteemed by the natives of that country.

5. *Malt or Fermented Liquors.*—We are informed, that the art of making a fermented liquor from barley, was discovered at a very early period of history, by the Egyptians. This liquor was anciently called barley wine, (*vinum hordeaceum*), and was afterwards known under the name of northern wine, (*vinum regionum septentrionalium*), being principally used in northern countries. Indeed, in hot countries, or in very warm weather, it can hardly be made at all. By some it has been called the strength of corn, or *liquid bread.*

The points to be considered under this head, are, 1. The different sorts of grain from which malt liquors are made; 2. The different sorts from liquors made of barley, and the qualities of each; 3. The advantages resulting from the use of malt liquors; and, 4. The objections thereto.

Malt liquor is generally made from barley, but it may be likewise prepared from malting oats, rye, (which produces a drink lighter and more diuretic than the common barley beer), wheat, maize, or rice. Sometimes, also, different grains are mingled together, as oats with barley, by which the liquor is made more cooling for summer; and by some thought more wholesome at that season of the year *. In former times, it was not unusual to mix some pease with the barley, by which strength was added to the beer, and it was said to keep much longer †; but on the whole, it has been found most expedient, to make beer from the two-rowed barley, or from the inferior sorts called beer or big. In the years 1800 and 1801, when the price of grain was very high, beer was allowed to be brewed from sugar and molasses: but only table-beer was attempted. Now that the duty on malt has been removed, such expedients are unnecessary.

2. The different liquors prepared from barley are small beer, strong beer, porter, and ale, to which purl and mum may be added, though these are not much used in this country.

Small beer is a valuable diluent, and is unquestionably, at least in this country, the best table beverage with which we are acquainted. It seems gently to stimulate the stomach, and to forward the process of digestion, and when properly manufactured and slightly hopped, it is more refreshing than any other drink. It is an unfortunate circumstance therefore, that fashion should interfere with the use of a beverage, which, while it is the natural one of the country, is so useful to the digestive system.

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* Venner, in his *Via Recta ad Vitam Longam,* says, That beer made of barley and oats, in equal proportions, or two-thirds barley, and one of oats, is better than when made of barley alone, more especially in the hot seasons of the year, as it receives a singular cooling quality from the oat. A sort of beer has also been made of two-thirds malt, and one third *raw-grain;* but it is not much esteemed, having been resorted to merely in consequence of the high duties on malt; it must be drunk in three or four days after it is made.

† Hart's Diet of the Diseased, p. 125.

By the poorer classes, well-fermented small beer ought to be regarded the greatest blessing, for while it assists the stomach in digesting the coarse and crude aliment on which they live, it is itself nourishing.

Small beer should be soft and mild, thoroughly fermented and purified, and not too much hopped.

The celebrated Sydenham always took small beer at his meals to prevent gravel, and more modern experience seems to warrant the correctness of his views of its effects.

The strongest species of beer is not so much in use now as formerly, owing to the introduction of porter. It is still, however, brewed. Strong beer, it is said, ought to have six properties. It should be, 1. Made of good materials; 2. Properly fermented; 3. Of an adequate strength; 4. Old, and purged from dregs; 5. Clear and thin; and, 6. Of a pleasant taste *.

Strong beer is accounted more nutritive than wine; and in moderate quantities, is to be regarded a wholesome, refreshing and strengthening drink †.

Porter is prepared in a peculiar manner, there being added to it many other articles besides the ingredients commonly used in making malt liquors ‡. It certainly is, when properly made, not only a palatable, but, if taken in moderation, a wholesome

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* Venner's *Via Recta ad Vitam Longam*, p. 39.

† The celebrated Dr Franklin, at the same time observes, that the bodily strength furnished by beer can only be in proportion to the solid part of the barley dissolved in the water of which the beer is composed; and that, as there is a larger proportion of flour in a penny loaf, than in a pint of beer, consequently, more strength is derived from a penny loaf and a pint of water, than from a pint of beer. As a proof of the justness of this doctrine, Dr Franklin states, that when he was a printer in London, though he drank nothing but water, yet he was the strongest of fifty workmen, all of whom drank beer, and one of them to the extent of six pints in the day. —*Franklin's Life, written by himself*, p. 119 and 120.

‡ In a work, entitled, "Every Man his own Brewer, by Samuel Child," there is an account of the ingredients used in making porter, and the proportion and expense of each; but it is hardly possible that all the ingredients he mentions, especially the more pernicious articles, can be essential in making porter. Some of them, as the cocculus indicus, are prohibited by law. Accordingly, in a practical treatise on brewing, printed anno 1804, it is asserted, that in addition to water, malt, and hops, nothing else is necessary, to make good porter, but liquorice root, Spanish liquorice, and coarse brown mixed sugar or treacle. Porter is made of high dried malt, or of malt burned with brushwood The hops are generally inferior in quality to those employed in making ale.

drink, and often agrees with weak stomachs, when ale does not. London porter, as formerly made, was possessed of such stomachic and *diuretic* powers, as to give it, in many cases, a preference over common beer and ale. It is now however, extremely apt to be medicated; and when strongly impregnated with bitters and narcotics, it is apt to induce drowsiness, and consequently is improper, where there is a tendency to affections of the head. Porter should not be drunk too new, nor used by the sedentary and indolent.

Ale was originally made in England of malt, barley, and yeast only. We are told by one of the oldest English writers on medical subjects, (Andrew Borde), that those who put in any other ingredient, sophisticated the liquor. It should never be drunk under five days old. " It is," he says, " the natural drink of an Englishman; but beer, on the other hand, which is made of malt, hops, and water, is the natural drink of a Dutchman, and of late is much used in England, to the great detriment of many Englishmen."

There was formerly so much prejudice against hops in England, that they were considered as pernicious weeds. But it is now generally admitted, that they are a very valuable ingredient in malt liquors. Without hops, or some such addition, we should be forced to drink our malt liquors in a new and unwholesome state, or be exposed to their becoming sour. Independent of the flavour and tonic virtues which hops communicate to malt liquor, they precipitate, by means of their astringent principle, the vegetable mucilage, and thus remove an active source of fermentation. The use of hops is also exceedingly valuable, as a means of preserving malt liquor, even in the hottest climates; and the English brewers are consequently enabled, by a due addition of hops to ale, to supply our countrymen within the tropics, with a beverage, which is not only refreshing in the highest degree, but which has fortunately in a great measure superseded that pernicious and insidious drink, cold spirits and water.

Ale should sparkle in a glass, but the smaller the bubbles the better.

New ale is regarded most nutritive; hence tipplers of that liquor may be said, with Boniface, to eat, as well as to drink their ale.

Purl is a kind of medicated malt liquor, in which wormwood and other aromatic bitters are infused. It is not much in use at present, and is reckoned very unwholesome. Drinkers of purl are said to be peculiarly liable to apoplexy and palsy *.

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* Trotter on Drunkenness, p. 38, 39.

Mum is properly a German liquor, and has not a higher claim to be accounted a wholesome beverage *.

3. *Arguments in favour of Malt Liquor.*—Malt liquors are properly denominated *vinum Britannicum*, and afford to this country, a nourishing and wholesome beverage. It is a common observation, that those who drink malt liquors, are stronger than those who drink wine †; and to those who are under training for the ring, or for any feat requiring great corporeal strength, old home-brewed beer, drawn from the cask, is particularly recommended.

Malt liquor has also been found of service, in the treatment of disease, as in typhus fever, and other disorders. Bottled porter is one of the best articles in the diet of convalescents, and has been found serviceable in hospitals, particularly in naval and military ones, where it is a great object to render men quickly fit to return to their duty ‡.

There seems to be every reason to believe, that malt liquor is better calculated for the inhabitants of this country generally, than wine. It is, at the same time, considered very valuable at sea, as an antidote to scurvy.

Malt liquor is so necessary to some individuals, that they suffer from indigestion, if they dine without it. And Jackson, the celebrated trainer, affirms, that if any person accustomed to drink wine, would but try malt liquor for a month, he would find himself so much the better for it, that he would never return to the use of wine again.

4. *Objections to Malt Liquor.*—Galen and Dioscorides, two celebrated ancient physicians, condemn malt liquors as unwholesome §. But it is probable, that in ancient times, and in the countries in which they lived, the art of preparing such liquors in the best manner, was not known.

It is objected to the use of malt liquor, that it has a tendency to produce unwieldy corpulency; and it cannot be denied, that strong ale or beer, when taken in great quantities, without sufficient exercise, has this effect. It is also stated, that those who indulge to excess in malt liquor, without *working it off* by labour or exercise, are liable to have the mind injured.

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* Vide Appendix, *Mum*.

† Hence the superior constitutional vigour, or bottom, of the British soldiery.

‡ Trotter's Medicina Nautica, vol. i. p. 293.

§ Galen, lib. vi. Sump. Medic. Dios. lib, ii. cap. 80, and 82. Malt liquors are called by this author, Zythum et Curmi.

Malt liquor seldom agrees well with the sedentary or bilious; and is highly improper for the corpulent, or asthmatic, or for those who are liable to giddiness, and head complaints.

The last objection to malt liquors is, that it is much more injurious to the health, to be intoxicated with ale, beer, or porter, than with wine.

This, however, and, indeed, all the objections to malt liquor, are more levelled at the abuse, than the proper use of that article.

6. *Spruce Beer.*—This drink is made from a decoction of the spruce fir. It is a powerful diuretic and antiscorbutic; it disagrees, however, with some constitutions. Containing a large quantity of fixed air, it is extremely refreshing in summer; but its peculiar flavour is disagreeable to many. Spruce beer does not require any malt liquor to be mixed with it, as some may imagine *.

7. *Honey Liquors.*—The useful article honey, is not only of importance as food, but is also extremely valuable, from the liquors which may be made from it. These are, 1. Hydromel; 2. Mead; and, 3. Metheglin.

Hydromel is made by boiling honey and water, with the addition of aromatics, as cinnamon, ginger, nutmeg, and cloves. As it is not subjected to fermentation, it does not, strictly speaking, come under the present head, but it does not seem worth while to separate it from the other beverages made with honey. It may be used as common table drink.

Mead is prepared in the same manner, but is subjected to fermentation, by the addition of yeast, whence it obtains a vinous quality. When kept to a proper age, it becomes clear and fine, and has a pleasant taste. It is considered as particularly useful in nervous cases, being a powerful cordial, approaching, in its nature, to the wines of Spain and Portugal; though it differs from them in possessing, along with its stimulant, a nourishing quality. It forms, therefore, the most proper drink for the aged and infirm, and is peculiarly well suited to the winter season. When mead produces uneasiness in the stomach and bowel complaints, it should not, of course, be persevered in. It should never be drunk till it is refined, as it contains more viscid particles than other vinous liquors, all which should be fully deposited before it is used.

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* Vide Appendix of Receipts.

Metheglin.—The difference between this and mead, principally arises from the proportion of honey in each. Mead consists of one part of honey, and four of water; whereas metheglin contains only two parts of water to one of honey. Besides the aromatics used in mead, certain herbs, as rosemary, hyssop, thyme, and sage, are mixed with metheglin. It is said that this liquor is exceedingly wholesome in the winter season, more especially for old people, having the property of heating the body, and removing phlegm; but it must not be taken new, and requires to be thoroughly fined *.

Liquors made from honey, are prepared in the greatest possible perfection in Poland; in particular, that sort known there under the name of *Lipets*. It is clear, and sparkles like champagne, and by many is thought superior, both in strength and flavour, to that far-famed liquor. The honey in Poland, particularly Lithuania, is in some districts of very superior quality, which may account for the excellence of the liquors manufactured from it.

4. *Distilled or Ardent Spirits.*

The art of distilling spirits may unquestionably be regarded as the source of greater moral degradation and turpitude, than any other art which science, either in its infancy or maturity, has taught mankind. And although spirits be useful as solvents in many of the arts, and as medicine in sickness, there is much reason to believe, that we should be better and happier, had the process of distilling spirits remained undiscovered.

The invention of distillation has been ascribed to the Arabian chemists; and as the art of extracting spirit from grain is an operation which requires some knowledge of science, it is not improbable that it may be justly attributed to them. But on the other hand, it appears to us very likely, that spirits may have been produced from fermented fluids, long before chemistry flourished in Arabia. It has evidently been known from time immemorial, that the juice of trees, such as the Palmira, although innocent when first drawn from the branches, becomes an intoxicating fluid after being allowed to stand for a few hours ; and it is highly probable, that experiments in an early period of the world, may have been made, in the hope of concentrating the intoxicating qualities of such fluids. When therefore, we consider the simplicity of the apparatus which is, even in the present day, resorted to in some eastern countries, in the distillation of spirituous liquors, we are justified in believing, that so rude an art may have been handed down from the earliest existence of society.

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* Venner's *Via Recta ad Vitam Longam*, p. 44. Dr Falk, in his Guardian of Health, p. 147, says, that well-made metheglin is the most generous drink in nature, suited to our climate. It may be proper to add, on the authority of an intelligent friend, that by filling a jar with honey, hanging it in a vessel, kept full of boiling water, for two or three hours, and skimming off the wax, and whatever else is thrown up, a pure kind of honey, or sugar of honey, may be obtained, which any person may eat, to whom honey either drained, or in the comb, is disagreeable. This has often proved useful to those having obstinate coughs.

Ardent spirits are obtained by condensing the steam of boiling fermented fluids; and in different countries different grains are used in this process. In the East, rice affords a spirituous liquor ; in France, spirits are distilled from wine, cyder, and perry ; in England, and in Germany, from malt; and, in the West India islands, from sugar and molasses. Ardent spirits, from whatever substance obtained, are found, if freed from their volatile oil, to be essentially the same. By repeated distillations, they are more completely purified, and obtain the Arabic name of *alcohol* *.

Such being the fact, we must ascribe the various flavours of the different distilled spirits, to the presence of extraneous substances. Each kind of spirit has its band of supporters, enlisted either by interest or taste. We must leave those, to whom spirits are necessary, to decide upon that which agrees best with their own constitution, observing generally, that brandy is the most bracing and stomachic, and the best calculated for medicinal purposes ; gin and whisky are the most diuretic and sudorific, and, when properly prepared, are the best calculated for internal use in cold and damp weather ; rum and arrack are the most heating, and the most likely to occasion complaints in the head. They are, one and all, when taken to excess, certain ultimately to produce the most fatal consequences, physical and mental.

The qualities of spirits are much improved by long keeping. We have seen whisky above forty years of age, which had become peculiarly soft and balsamic; and we have found equally good effects produced in brandy, which had been kept in a cask for above fifty years.

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* In the *Annales de Chimie* for July 1806, (tom. 95), there is a report regarding spirits, considered as a drink for the use of troops, by the celebrated Parmentier. The object of this report was, to ascertain whether *brandy*, (l'eau de vie), *or pure spirits of wine*, (alcohol), is the fittest for the use of troops. The result of the report is, that it is more for the advantage of the government, and of the soldier, to distribute the natural spirituous liquors of the country, than spirits of wine; or, in other words, to give brandy in the wine countries ; spirits made from cyder, and perry, in Normandy ; and that made from corn, in Belgium and Holland.

That spirits, although unfortunately so frequently pernicious to man, may sometimes prove very serviceable to him, is well established. We need not enlarge on their uses as a stimulating cordial in cases of extreme weakness; nor on their value, when resorted to, to counteract the injurious effects of cold, wet, or extreme fatigue. This quality of ardent spirits cannot be better illustrated than in the instance of the men in the boat with Captain Bligh, after the mutiny, who were exposed, for nearly a month, to cold, wet, and hunger; in their case, even one tea-spoonful of rum daily, enabled them to undergo the greatest hardships *.

It would be out of date now to expose at any length the system of cordial drinking in private families, or in apothecaries' shops, a habit at one time so much in vogue; but a hint on this subject may even still be of service. Nothing can be more pernicious than a system of indirect dram-drinking; and those kind ladies who exert their ingenuity in covering the smell and taste of ardent spirits, by the addition of luscious and often poisonous articles, may rest assured, that nothing is more likely to lead to the *necessity* of intoxicating fluids, than the insidious acquaintance with them, which the use of "*liqueurs*" brings about.

The custom, not uncommon in many families, particularly at feasts and entertainments, of handing cordials round during dinner, is contrary to all the rules of temperance †; it is deceiving the unwary, for there are many who drink spirits as *liqueurs*, who would blush to taste brandy undisguised. Many of these cordials are impregnated with narcotic substances, which add to the noxious qualities of the spirit. Indeed, there is hardly any ingredient mixed with spirits ‡, water alone excepted, which does not increase their pernicious qualities.

A respectable American physician, Dr Rush, published a short, but valuable treatise on this subject, which ought to be reprinted, and circulated in this country. He there considers the effects of ardent spirits, as they appear in a fit of drunkenness; the chronic effects of their habitual use upon the body; their influence upon the mind; and their effects upon the property of those who are addicted to the use of them; forming altogether a picture of degrading misery, calculated to stagger even the habitual drunkard. It may be proper to observe, that in training men for athletic exercises, spirits are never allowed, on any consideration whatever, not even with water.

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* Code of Health, 2d edit. vol. ii. p. 40, note.

† Not only after the dessert, but also about the middle of dinner, it is not unusual at French dinners, to have a glass of Jamaica rum, wormwood wine, or that of Vermouth, handed round, for the purpose of restoring the appetite to its original vigour. After the dessert, coffee and *liqueurs* are generally served.—See Pinkerton's Recollections of Paris, vol. ii. p. 207.

‡ What is called ratafia, ought to be particularly avoided. It is made by infusing in the spirits the kernels of apricots, or bitter almonds, or even laurel leaf. Such a mixture, containing a portion of one of the most virulent of all poisons, prussic acid, must be particularly unwholesome.

Various attempts have lately been made, to lessen the consumption of spirits, particularly among the lower classes; and many sanguine individuals, both of this country and America, have hoped to attain this object by the formation of Temperance Societies. There can be little doubt, that if associations were entered into by the working classes, on the principles of these spirits-abjuring societies, the members would be great gainers; for it is too certain, that more actual misery, and moral degradation, are to be traced to the abuse of spirits, than to any other circumstance in the present state of society. It is however, scarcely consistent in the higher classes, to hope for abstinence from spirituous liquors by their poorer neighbours, while they themselves enjoy unrestricted the free use of wine; and it must, at the same time, be borne in mind, that spirits, under due restriction, are the reverse of pernicious to those labourers, who are much exposed to the vicissitudes of our variable climate.

Spirits and Water.—However dangerous the consumption of spirits unmixed may be, *the constant use of them with water*, must be regarded as even a more fatal practice; for it is too common an occurrence, to increase the proportion of spirits, until at last it will equal, if not exceed that of the water, and ultimately, it becomes hardly possible to renounce a habit, to which the stomach has been long accustomed.

A respectable physician, (Dr Falconer), has written an interesting tract, in which this subject is particularly discussed. He observes, that some medical men have unfortunately been led, to give a most exceptionable direction with respect to diet, that of substituting brandy or rum, diluted with water, for common drink; and it is not only prescribed in extraordinary cases, as a temporary expedient, but it is frequently directed, in almost all cases of weakness in the stomach, or digestive organs, *as a perpetual article of diet.* In his opinion, nothing can be more injurious to the science of medicine, or fatal to mankind, than this unfortunate piece of advice. It recommends an odious and insidious practice, which cannot be too strongly reprobated.

Dr Falconer is, no doubt, in some respects right in the opinion he has formed on this subject; for unquestionably, cases of habitual dram-drinking, have been traced to the prescription of spirits and water during meal times.

Notwithstanding this however, it is, in the opinion of many eminent physicians, necessary to prescribe spirits and water, in lieu of any other table drink, to certain descriptions of dyspeptic patients. In such cases, the exact quantity of spirits in proportion to water, should be most distinctly stated, and any deviation from the prescription decidedly prohibited.

There can be little doubt, that *the grog* on board ship has proved a pregnant source of destruction to many young men destined for India, who, but for the vanity of being able to take their "glass of grog with the captain," would have escaped a taste for spirits and water, ruin of health, loss of character, and premature death. Some very melancholy instances have been told us of the loss the country has sustained from such causes; and we would earnestly impress on captains of Indian ships the necessity of banishing grog from the cuddy.

It is a fortunate circumstance, that spirits and water as a drink, have lost much of their popularity in our intertropical colonies; and it would be an incalculable blessing to our seamen and to our soldiers in hot climates, could well-hopped beer be substituted in those parts of the world for their allowance of spirits. We are informed, that it is by no means uncommon for recruits newly arrived to join regiments on service in India, to be forced to drink their dram at the cask, or expose themselves to the ridicule of having it poured out on the ground. Of course, a young lad, however well disposed to sobriety, can scarcely, in these circumstances, escape habits of a most ruinous tendency—Surely some remedy might be found for so injurious a system.

An account of a case, connected with this subject, is given by Dr Valangin, and ought to be generally known. A respectable lawyer having got into the custom of drinking brandy and water, carried it to such an extent, that his appetite became depraved, his spirits depressed, and his nerves shattered to such a degree, that he could only support himself, by having recourse daily to liquor. He was saved by a severe fit of the gout, attended with a train of nervous and spasmodic complaints, which very nearly destroyed him; and to cure which, he was prevailed upon by his physician, to renounce his unfortunate habit *.

Punch.—This mixture of spirits, acid, sugar, and water, was formerly much in favour, but fortunately its use is now little in vogue; and as it proves highly injurious to most stomachs, the sooner it is entirely dispensed with the better. Toddy, or spirits, hot water and sugar, is a less objectionable beverage, and is indeed, by many, found the safest and best after-dinner drink in this country.

Table of the Quantity of Alcohol, (sp. gr. 825,) *at* 60° *Fahr. in several kinds of Wines and other Liquors.*

	Per cent. by measure.		Per cent. by measure.
Port, average,	23.48	Côte Roti,	12.32
Madeira, do.,	24.40	Cape Madeira,	18.11
Sherry, do.	17.92	Constantia,	19.75
Claret, do.	14.43	Sheraaz,	15.52
Calcavella,	18.10	Nice,	14.63
Lisbon,	18.94	Tokay,	9.88
Malaga,	17.26	Raisin Wine,	25.77
Bucellas,	18.49	Grape Wine,	18.11
Malmsey Madeira,	16.40	Currant Wine,	20.55
Red Champagne,	11.30	Gooseberry Wine,	11.64
White do.	12.80	Elder Wine, Cyder and Perry,	9.87
Burgundy,	11.55	Stout,	6.80
White Hermitage,	17.43	Ale,	8.88
Red do.	12.32	Brandy,	53.39
Hock,	14.39	Rum,	53.68
Frontignac,	12.79	Hollands,	51.60

It must be observed however, that alcohol in a combined state, as it exists in wine, is very different from the same spirit when produced by distillation, both in its nature and as to its effects on the human system; and of course, with regard to some of the wines in the above list, from their being *manufactured* in this country, in addition to the alcohol of fermentation, there would also be found that of the brandy, added, to render them fit for the British market.

SECT. III. *Rules as to the Consumption of Liquids.*

The points to be considered under this general head, are,—1. The total quantity of liquid food sufficient for one day; 2. At what times that quantity should be taken; 3. Whether in a hot or a cold state; 4. What diluent is the best calculated for digestion; and, 5. What miscellaneous rules ought to be observed in regard to drinking.

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* Valangin on Diet, p. 140.

1. It is a common piece of advice to those persons whose stomachs are weak, and digestion imperfect, that they should take their food as dry as possible, and drink as little as they can, of any liquid, with or after their meat. This restriction is, no doubt, sometimes highly necessary; but it must be remembered, that it is apt to produce, or to increase, a costive habit, the source of so many disorders.

It seems to be generally admitted, that people drink too much, and thereby weaken the activity of their digestive powers *. On the other hand, there are individuals who go to the opposite extreme; who drink little at meals, and rarely at any other time. We are told of one young man, who, for a considerable time, had taken no drink with his meat; he had a very florid complexion, and suffered from a scorbutic eruption over every part of his body; he was freed from the eruption, without any other remedy, than drinking at his meals†.

Extraordinary instances are adduced of the quantity of fluids consumed by some individuals. Thus many coal-heavers and brewery servants, will swill four gallons of ale or porter in the twenty-four hours; and an instance is narrated of a marine, who was accustomed to drink four gallons of beer in the day; he soon became bloated and stupid, and died of apoplexy ‡.

The proper proportions to be consumed of solid and fluid food, are thus stated by an intelligent physician; if we suppose the whole weight of solid food, in twenty-four hours, to be a pound and an half, he thinks that three pounds of liquids, one pound to consist either of milk, or of some strong liquor, and two of some aqueous fluid, will, on a medium, be sufficient to dilute the solid food. A larger quantity, the same writer observes, would but distend the vessels, and carry off the finer parts of the chyle by water, or perspiration, discharges which are increased by an over-dose of fluids; while a less quantity is not, in his opinion, sufficient to dilute the food §.

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* The trainers to athletic exercises remark, that drinking much, swells the belly, encourages soft unhealthy flesh, and is bad for the wind.

† Robinson's Dissertations on the Food and Discharges of Human Bodies, p. 65. In the Medical Transactions, vol. ii. No. XIX. p. 275, there is an account given of Mr Thomas Wood, a miller of Billericay, in Essex, who lived for a length of time without liquids. But this was a particular case; the object was to reduce excessive corpulency, and, of course, the supply of fluids within his own body, must have been very great.

‡ Trotter's Essay on Drunkenness, p. 157.

§ Cheyne's Essay on Health, p. 68.

Some will object to the smallness of this proportion of liquids; but three pints *per* day is all the quantity allowed to boxers, when training to athletic exercises *, and, consequently, must be sufficient for the acquirement and the preservation of strength in this climate †. Three pounds however, would be found too small in hot countries, or in cases where the individual is obliged to undergo great labour, or under any other circumstances in which there is an extra discharge of fluids from the system.

On the subject of liquid food, it is observed by Arbuthnot, that the great secret of health is, to keep the fluids in due proportion to the capacity and strength of the channels through which they pass; but that there is more danger in an excess of fluid, than when the quantity is too small; for it is found by experience, that the very ease with which fluid food is digested, weakens the powers of the stomach; and as the individual becomes unable to digest a necessary quantity of solid food, the strength of the system soon fails.

2. It may be laid down as a general rule, that the time at which our fluid food ought to be taken, is during, or soon after a meal; and the quantity of liquid food, at the two principal meals of breakfast and dinner, ought to be nearly the same; but rather more at dinner.

Custom has introduced among the higher classes a habit of using at table a variety of liquors. This can scarcely be considered advisable, and most individuals would probably gain, by restricting themselves to wholesome table-beer during dinner, and to one kind of wine; small beer, when free from acid, is, as already stated, a wholesome beverage for all classes. No animal except man, eats and drinks at the same time; and one disadvantage of this habit is, that drinking during meals is the chief cause of our overloading the stomach.

It has become a question, whether the wine drunk at dinner should be taken simultaneously with the solid food, or principally, at least, after the table-cloth has been removed. In

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* The ancient athletæ were allowed a very small quantity of fluid; and this *dry diet*, as it was called, seems to have constituted an essential part of their regimen. See Dr Buchan's letter, in the Code of Health, 2d edit. vol. ii. Appendix. We are informed, that the athletæ at the court of Tanjore, India, who keep up their strength more regularly and permanently than is common with boxers or wrestlers in this country, almost invariably die of diabetes.

† Smith, the celebrated Yorkshire trainer, recommended from three to four pints of good old ale, with a toast, to be taken at different times in the course of the day. In regard to wine, he allowed, in cases of diarrhœa, a few glasses of port *per* day; and, for three or four days previous to the conclusion of the training, half a gill twice a-day of mountain wine.

France, the former is the custom, while with us, after-dinner potations are still in some degree adhered to. Although we may consider the French system, in this respect, more refined, and as having less tendency to lead to habits of intemperance, still we can scarcely expect, that in a country in which the men, as with us, take such a deep interest in politics, and other subjects little interesting to females, there is any great probability, of the system of leaving the table with the ladies, being generally introduced.

3. It has been much discussed, whether liquids should be taken warm, or cold, or even iced. It is a good general rule, to take them rather warm in cold weather, and either cold or iced in warm; but this must be regulated according to circumstances.

The Chinese take all their liquids warm, affirming that as the fluids of the body are warm, the liquids taken into the stomach should be so also *. But there is no reason for acting on this idea. Broths, soups, and liquids, in which fatty and nourishing substances are dissolved, no doubt ought to be taken warm; but as to liquids which are taken merely as diluents to our daily food, there seems to be no good reason for interfering with the instinctive desire of the stomach for cool fluids.

The Greeks and Romans usually drank their liquors cold; and they were only occasionally taken warm, chiefly by valetudinarians, as a necessary part of regimen. Seneca represents the drinking of wine diluted and warmed, as proper for a valetudinarian, but intolerable to the healthy. Hippocrates enumerates the various bad effects arising from the continued abuse of warm diluting liquors; and the Rhodians, we are told, were remarkable for their pale and effeminate complexions, acquired, it was supposed, by the excessive use of warm water †. The health of the Emperors Augustus and Claudius, enervated by the warm regimen, was restored by drinking their wine cold ‡.

Not only did the ancients prefer their liquids cold, but they were also accustomed to take them after being iced, in which practice they have been imitated in our day §. It appears

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* Dolæus, in his Essay on the Gout, states, that he knew a gouty gentleman, who drank warm beer with great success for the gout; and that the Chinese, who drink their water warm, are not subject to this distemper.

† It is singular, that the same remark may be made of the Chinese.

‡ Barry on the Wines of the Ancients, p. 154, 155. The ancients were of opinion, that heated wine inebriated much sooner than cold wine.

§ Some also cool their wines by evaporation, a practice derived from the East Indies.

indeed, from much experience, that cooled liquors are not only grateful but salutary in hot climates. It is probable that they relieve the system, by assisting it to overcome the debilitating effects of an undue temperature. Cold fluids however, are dangerous to persons much heated by exercise; and are improper in advanced age, and in the colder seasons of the year *.

4. It would be very difficult to lay down a rule, at all likely to prove generally useful, as to the diluent most likely to assist the process of digestion. Habits of life and experience are the only safe guides on this subject; and we shall merely observe here, that those who, from circumstances, or other causes, are unable to procure manufactured drinks in a wholesome condition, had far better limit themselves to water, than interrupt digestion, and injure their stomach, by the use of sour or otherwise deleterious beverages; for there can be little doubt, that more of evil has resulted from bad qualities of drinks, than from excesses as to quantity.

5. The following miscellaneous observations are connected with rules for drinking.

The drink of the young and healthy, should be water, or weak fermented liquors; for it is scarcely necessary to observe, that in the earlier periods of life, the digestive organs are in a state of sufficient activity to render the extraneous assistance of stimulants unnecessary.

As a general observation, it may be stated, that those who are in the habit of seeking assistance from wine and other stimulants, ought, in summer and fine weather, to lessen the quantity; while they may be held excused, if they rather strengthen their potations in the depth of winter and in the damp weather of spring.

There are two opinions held by medical men, and others of experience, with regard to drinking wine; some recommending the daily use of a moderate quantity of this valuable article, while others regard an occasional excess, with an intervening abstinence from wine, as preferable to the temperate but regular use of it. This latter opinion has been maintained by eminent physicians, but it is evidently, both morally and physically, of a pernicious tendency. And, although it is far from our wish to recommend the unnecessary use of wine, still it must be evident to every observer, that a moderate daily quantity of this liquid, is very far from being

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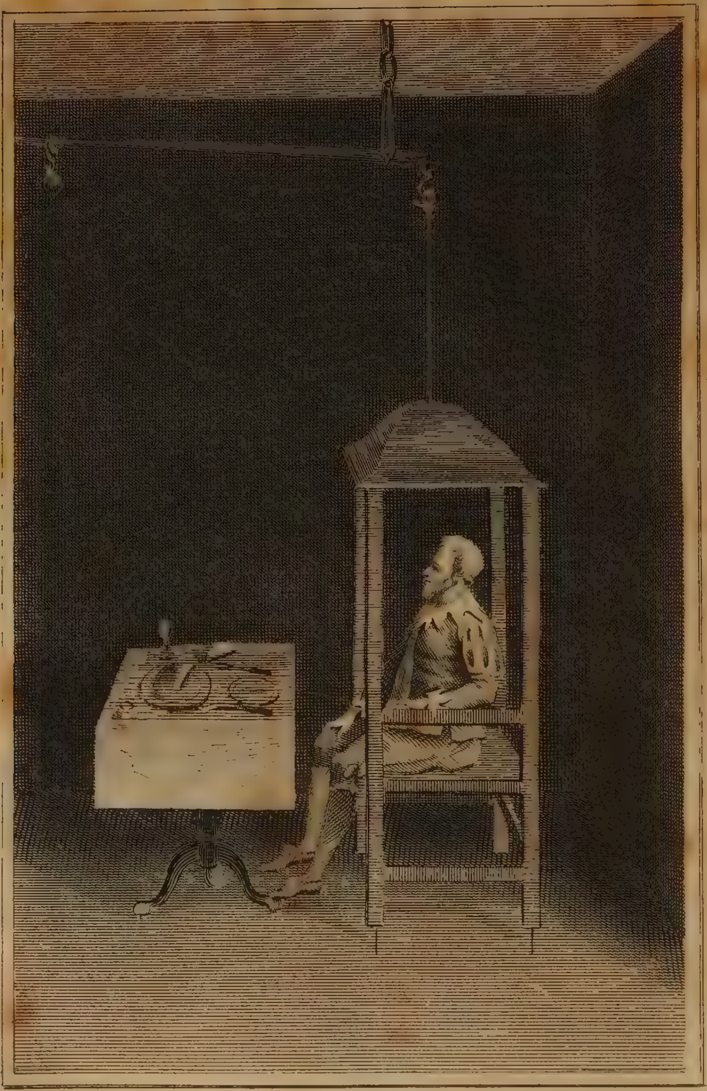
* Barry on the Wines of the Ancients, p. 172. Ramazzini strongly inculcates the same doctrine.

injurious, while occasional intoxication cannot be ventured on without serious risk.

Much has been said for and against drams. A small glass of spirits after dinner, may be regarded as one of the customs of the northern part of the island; and the habit has perhaps lately been increased, by the idea which was entertained, that it was useful as a preventive of Cholera. To those who limit themselves to a small quantity of spirits after a hearty meal, there can be little objection made; and so long as we are not satisfied with simplicity in our diet, it is more than probable, that, after a certain age at least, the assistance of a dram is highly acceptable to the stomach.

In conclusion we may observe, that it is no small comfort to the inhabitants of Great Britain, that the example formerly afforded, by the higher ranks of society, to their poorer neighbours, of disgraceful habits of intoxication, is now rare; and as the march of education, is rapidly bringing the poorest individual within the reach of instruction and amusement, apart from idle companionship, we may hope, that the time may yet come, when habits of temperance, will reach those classes among whom, as yet, unfortunately, intoxication brings with it no great disgrace.

We may farther observe, that the higher orders should seriously consider, how little consistent it is with the process going on in the stomach after dinner, perseveringly, but gradually, to add to its contents small portions of cold fluid. There is reason to believe, that the less interference there is with the stomach, in the first stages of its functional operations, the more likely is it to accomplish digestion satisfactorily; and it seems highly probable, that much of the modern prevalence of dyspeptic affections is to be ascribed to a habit so unnatural, and pernicious. In Scotland at least, we believe, that hot negus, or a tumbler of hot toddy, will assist the stomach, and prove much more agreeable to the system generally, than mere wines.



SANCTORIUS IN HIS BALANCE.

CHAP. III.

OF SOLID FOOD.

To attempt to enter into any detail, of the vast variety of particulars, connected with the subject of *solid food*, which have occupied the attention of mankind for so many ages, and on which, not only volumes, but it may be said, *even libraries*, have been written, would far exceed the bounds by which our present inquiries must be limited. We shall proceed, however, briefly to consider, I. The uses of solid food; II. The nature and quality of the different sorts of solid food; III. The means of preserving food until consumed; IV. The mode of preparing food for consumption; V. Condiments usually taken with food; VI. The times of eating, and the sort of food best adapted for each meal; VII. The quantity that ought to be taken at the different meals; and, *lastly*, Miscellaneous rules connected with diet.

SECT. I. *On Solid Food; including some Observations on Regimen in general.*

SPECULATIONS on the *uses* of food, would be wholly superfluous. It is sufficient for our present purpose to observe, that every living thing, vegetable or animal, is, from the commencement of its existence, dependent for the continuance of vitality, on the nourishment supplied by substances foreign to itself. Plants, although attached to the soil, are constantly drawing food from the surrounding elements; and the process of assimilation, may be considered as going on almost uninterruptedly, in the stomachs of all creatures endowed with animal life; the embryo state, however, of the more perfect tribes of animals, approaches nearer to the process of vegetation, than to that whereby animal life is sustained: The nourishing vessel of the fœtus, stretching out its roots among the blood vessels of the mother, collects food from the fluids of her system. But from the period of birth, it is from the stomach alone that the body is fed; and no subject therefore, is of more importance, with a view to health and longevity, than that of diet; and, in a special manner, of solid food.

It is not merely during the growth of the animal that a constant supply of food is necessary, although unquestionably, during that period of life, the regulation of diet is a matter of the greatest importance. Animal bodies, during the whole period of their existence, are undergoing a constant series of changes *; absorption and deposition are uninterruptedly in progress; and without a supply of new material, the system must feed on itself; so that a deficiency of food, occasions not only loss of substance, but produces an endeavour, on the part of the absorbing vessels, to work with what would have been otherwise thrown out of the system. Hence it is that improper or scanty diet, deteriorates the solids and the fluids of the body, while, at the same time, it reduces their quantity.

There are two principal points of view in which diet may be regarded; *first*—as the food of those in health; and, *secondly*, the regimen required for those labouring under disease, or its effects; or in other words, food requiring the full powers of the stomach for its digestion, and food likely to agree with weakened digestive organs.

It has been much discussed, whether man was originally intended for a herbivorous or a carnivorous animal. Practically however, this is a question of little importance; for experience has taught us, that man is capable of living not only on every variety of food, but of restricting himself, either to vegetable or to animal diet; and in that portion of this work which treats of the digestive apparatus, it will be satisfactorily shown, that man is truly intended to be omnivorous, or, we should rather say, that his digestive organs are prepared for the reception, both of animal and of vegetable substances. And although Broussonet is inclined to consider man, rather as a carnivorous, than as an herbivorous animal, in the proportion of 20 to 12; still we must regard any deduction from the nature of the teeth, or of the alimentary canal, as much less important than the result afforded by actual experience.

Climate indeed, after certain stages of civilization, seems to endow man with an instinctive discrimination, with regard to the food which is best calculated for his system; and hence we find the Brahmin of India restricting himself to vegetable diet, and the North American Indian living almost entirely on the produce of his bow. In truth, the power of the stomach is incalculable; and since it is found possible to bring the sheep to live on animal food, and the cat on vegetable matter, we need not be surprised to find the human stomach capable of assimilating such an infinite variety of substances.

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* One of the celebrated Dutch lawyers, raised a very ingenious argument on this foundation. His client had committed murder twenty years before his trial, and the lawyer, in defending him, maintained, that as the best physiologists had proved that the animal frame is constantly undergoing a change, the accused no longer possessed the body with which he had committed the crime, and therefore, by inflicting punishment on the body now belonging to him, an act of injustice would be committed!

Before proceeding to the second section of this chapter, it is proper to observe, that every description of food, whether animal or vegetable, is converted into blood; and consequently, that the several species, only differ from each other, in the proportional quantity of nutriment which they afford; in the degree of stimulus which they impart to the organs, through which they pass; and in the quantity of vital energy which they require for their assimilation. At the same time, it must be kept in mind, that the terms *digestible* and *nutritive* are far from being synonymous. A substance may be highly nutritive, but exceedingly indigestible; while another may give the stomach no trouble in dissolving it, although it affords comparatively little support to the body.

SECT. II.—*Of the Nature and Quality of the different sorts of Solid Food.*

SOLID food is derived from the vegetable and the animal kingdoms *. Many of the articles contained in each, are radically the same; but the difference, both in point of appearance, and in regard to the proportions of the same ingredients, is very great. The substances found in each, are numerous. But both vegetable and animal matter is *principally* resolvable into starch, sugar, mucilage or jelly, oil or fat, and gluten; and, as these principles are more abundant, and of better quality, in animals, than in plants, hence, in equal quantities, animal is more nourishing than vegetable food.

We shall begin with considering the different sorts of solid food taken from the vegetable kingdom.

I. *Vegetable Aliment.*

Vegetable aliment may be divided into ten classes: 1. Fruits; 2. Nuts; 3. Pulses; 4. Grains; 5. Roots; 6. Salads; 7. Pot-herbs; 8. The mushroom tribe; 9. Marine plants; and, 10. Miscellaneous articles.

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* Salt is derived from the mineral kingdom, but is used, not as food, but as seasoning or condiment.

1. *Fruits.*—The natural productions of trees and plants, we may suppose, were the first substances to which man would direct his attention, with a view to aliment; though fruits, now, have in general become rather an article of luxury, than of solid diet. They may be arranged under five classes: 1. Stone fruits; 2. The apple species; 3. Small-seeded kinds; 4. Small berries; and, 5. Farinaceous fruits. It is not proposed to enter minutely into the discussion of these articles, but merely to say a few words on each; and then to add some remarks on fruits in general.

Stone fruits * are usually of a soft texture, and contain a large proportion of juice; and although probably easily dissolved in the stomach, yet being liable to become acid, and possessing generally unwholesome, and often poisonous ingredients, they are apt to irritate the intestines, especially if used before they are ripe. Of stone fruits, the peach is reckoned the most delicious. The apricot, when thoroughly ripe, is more wholesome than the peach, and still more so than the cherry or the plum. Cherries are palatable, but ought not to be taken in great quantities. Plums, unless when perfectly ripe, are a dangerous fruit, though, in a dried state, (when they obtain the name of *prune*), they are sometimes useful as a laxative. Among the tropical fruits of this class, the mango is particularly worthy of notice; it is a large and delicious fruit, and, when ripe, may be eaten apparently with perfect safety; as boils are common in India during the mango season, these painful tumours are by many believed to be produced by eating this fruit; but they more probably belong to the season, than to a partial cause of this description. Tamarinds, a fruit difficult to classify, are in this country more frequently employed for medicinal purposes than as an article of diet. In India they form a principal ingredient in curries.

The apple species, of which there is a great variety, is, on the whole, a more valuable and useful article, than what is known under the name of stone fruits; and apples are to most people both palatable and salutary. The pear, when it is thoroughly ripe, is still more wholesome; but in their crude state, both pears and apples produce flatulence and acidity, effects which are however prevented by having them either baked or boiled.

Figs furnish a wholesome food, both in a crude and in a preserved state. It is a Hindoo maxim that a ripe fig at sunrise, is of the highest importance to health, and a valuable means of prolonging life; Galen was aware of the value of figs as a means of keeping the bowels open. The orange * is a delicious fruit, exceedingly pleasant and cooling, powerfully antiscorbutic, and highly useful in fevers; when ripe, it may be allowed to most individuals even with weak stomachs; but the white or inner skin should be carefully removed, as it is not digestible. Lemons and limes are chiefly useful, as additions to cooling drinks, or as an antidote to the scurvy, and other medicinal purposes †. The pine apple, on account of its grateful taste, and fragrant odour, is called the *king of fruits;* but it is far from being a safe fruit, and should never be taken in great quantities. Its high character belongs more to the hot-house fruit, than to the pine apple in its native climate.

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* Stone fruits possess something peculiar in their nature, which renders them not so salutary for the stomach; and with the smaller sorts, there is a risk of swallowing the stones, from which the most fatal effects have arisen.—*Turnbull's Medical Works*, p. 82.—See also a paper in the Philosophical Transactions.

The small-seeded fruits are by far the most wholesome and important. Of these, the grape deserves the first place, not only on account of the valuable liquor which it produces, but because the fruit itself, when ripe, is cooling, antiseptic, and nutritious. In eating grapes, the husk and seed should be rejected. Gooseberries, currants, and raspberries are safe, and to many, when ripe, palatable fruits; they are also, in a preserved state, valuable in cookery; while in this country, they take the place of the grape in the manufactory of wine. The same observations are applicable to mulberries. The strawberry, again, is unquestionably the finest fruit which our northern climate produces; but its virtues are sufficiently well known to render panegyric from us unnecessary. Strawberries are not only exceedingly wholesome when in season, but they afford the means of making very delightful preserves. The cranberry, the bilberry, and the red whortleberry, are seldom eaten except when baked, and in that state their acescency generally does not prove injurious.

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* The Seville orange is sour, and somewhat bitter, and though less palatable, yet is more stomachic than the China orange. Lemons, oranges and other fruits containing a great quantity of native vegetable acid, afford but little nourishment; but they are useful, as correcting the bad properties of other food.

† The acid of lemons and other fruits of the same sort, is known under the name *citric acid,* which forms the proper specific for the scurvy, and is also considered an antidote to narcotic poisons.

> " Media fert tristes succos tardumque saporem
> Felicis mali; quo non præsentius ullum,
> Pocula si quando sævæ infecêre novercæ,
> Miscueruntque herbas, et non innoxia verba,
> Auxilium venit, ac membris agit atra venena."
>
> VIRGIL, *Georg.* II. v. 126—30.

It is only however, after vomiting has been produced, that vegetable acids should be administered to those who have been poisoned with opium; for while the narcotic remains in the stomach, vinegar is injurious, by dissolving and helping its digestion.

The farinaceous fruits are not considered to be of a wholesome quality. The melon, which is the principal one, is an article of great consumption in some parts of Asia, particularly in Persia, but it is not so generally used in Europe. It is a fruit which, in our cold climate, is very apt to disagree with weak stomachs, and it would be an advantage to have it entirely excluded from our deserts. In eating it, pepper and salt, or sugar, should be added. The water-melon is greatly prized in hot climates, where it is generally much cultivated, and is certainly, notwithstanding its unwholesome qualities, deliciously refreshing during the hot season. The cucumber, and indeed all vegetables taken in a raw state, can only be safely used by those who have strong stomachs.

It may in general be observed, that fruits are rather to be considered an article of luxury than of food, at least in this country; and whether they are to be used in a crude, in a dried, or in a cooked state, they ought to be taken in great moderation. Raw fruits, if perfectly ripe, and in season, are pleasing and safe; and in inflammatory and febrile complaints, are perhaps the best means of administering refreshing aliment; but invalids must keep in mind, that although consumed in almost any quantity, with perfect safety, during the acute stage of disease, perseverance in the use of them, during convalescence, is very apt to injure the weakened digestive organs.

Naturally, fruits are in a state of perfection, at that period of the year, when their use is safe and most acceptable, and when the body requires a portion of cooling and antiseptic aliment; and were we only exposed to the temptation of these productions in their due season, it would scarcely be necessary to warn adults to avoid excess; but our uninterrupted intercourse with foreign and distant countries, now enables us to bring to the table, in a raw state, fruits, which neither the climate nor the season renders safe, and it is this perhaps, which renders fruits, in these times, so often a source of derangement in the alimentary canal.

As to the period when fruits may be taken with most advantage, the season of the year must also regulate this. In extremely hot weather, fruit may be eaten to breakfast, in the forenoon, or at night, with perfect safety. In the colder seasons, *after dinner*, is perhaps the only time when fruit should be indulged in.

Dried fruits, are very far from being so innocent as is generally believed. They contain sugar, which is apt to turn acid in the stomach; and their dried indigestible skins and seeds, being passed into the bowels unaltered, become a source of intestinal derangements. Preserved fruits should therefore be taken in great moderation by all, and never ventured upon by the dyspeptic.

Many fruits, otherwise unwholesome, may be converted into safe and wholesome aliment by cookery. Baked apples, for instance, afford a pleasant repast, and are found to agree with stomachs which are dangerously disordered by the raw fruit. And were it not for the pastry, fruit pies, if eaten with bread or boiled rice, might be regarded a valuable article of diet.

2. *Nuts.*—In ancient times, nations were sometimes distinguished according to the particular article on which they lived, hence the Arcadians were called *acorn-eaters.* It is believed however, that the acorns, so often mentioned in ancient history and tradition, comprehended, besides the produce of the oak, several kinds of shell fruit, such as chestnuts, walnuts, &c. *.

The nut species still furnishes, in some countries, a source of food; but although nutritious, yet they require strong stomachs to digest them †. Nuts in this country may be considered a luxury, and should be consumed in a fresh state. They generally require that salt should be taken along with them; and they should be used in very small quantities. They are most useful in puddings and emulsions, in which their tenacity is in some measure broken by sugar. Filberts, when taken in moderation, are not considered unwholesome; but if eaten in considerable quantities, after a full meal, as is often the case, they generally pass into the bowels undigested. The chestnut is, with many, rendered digestible, by roasting or boiling ‡. This fruit may, perhaps, be considered more nearly allied to pulse than to the nut tribe, as, from its farinaceous qualities, it may be made into bread; it forms, indeed, the chief food of the lower orders in Lombardy, and consequently, must be possessed of considerable nutritive qualities. The chestnut is by many regarded as the *acorn* of ancient history. Bitter almonds, when fresh, are a dangerous fruit, containing a portion of the most active of the vegetable poisons, prussic acid; owing to peculiarity of constitution, the smallest quantity of the bitter almond occasionally produces severe nettlerash and other unpleasant effects: it is a deadly poison to some animals. Pistachia nuts are perhaps the most wholesome of the nut tribe. The cashew nut cannot be eaten with safety, until deprived of its oil by heat. But of all this tribe, the chocolate nut (*Theobrom Cacao*), is the most valuable; its farinaceous part, the substance known by the name of Caco, or Cacao, the principal ingredient in chocolate, being highly nutritious *.

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* Goguet's Origin of Laws, &c. vol. i. p. 77. Potter, in his Antiquities, thinks otherwise. The acorn of the *Quercus suber*, or the cork tree, is as good as the filbert; and like the latter, it is sold in the markets of Spain.

† Hoffman observes, that dysenteric complaints are most common in those years in which the harvest of nuts is plentiful; and that this species of fruit is the most dangerous of any likely to fall in the way of the lower orders of the people, more especially in the country. When taken even in small quantities, he says they are found to oppress the breathing, and to produce vomiting and bowel complaints; but in large quantities, they have been often known to lodge in the stomach, and not to be removable by medicine, and thus to have put a speedy end to life.—*Falconer's Essay on the Preservation of the Health of Persons employed in Agriculture*, p. 13.

‡ In many parts of Italy, boiled chestnuts are used as a substitute for potatoes.

3. *Pulses* †, or the seeds of leguminous plants, as the pea and the bean, differ little from grain, excepting in being more difficult of digestion, and affording a flour of an unctuous nature. They are highly nutritious, but occasion flatulence, and are apt to lie heavy on the stomach. In their mature state, pulses are only fit to be used by those possessing strong digestive powers; to the dyspeptic, either in the state of bread, puddings, or porridge, pulses invariably prove the source of alarming uneasiness in the stomach, frequently ending in colics, and even diarrhœa.

Although, however, ripe leguminous seeds are often productive of derangements in the alimentary canal, many of them, in a young unripe state, are both palatable and digestible. Thus, pease when ground, and in the form of pudding, are, with many people, almost a poison; yet, in their green state, they are perhaps the most delightful and acceptable of our table vegetables. These observations apply with equal truth to beans, the larger sort of which are, in their young state, nourishing and digestible, whereas, they are wholly unfit for use when ripe. The kidney bean, being eaten with its pod, is not so flatulent as other pulse; when young and well boiled, it is easy of digestion, but not very nutritive. Ripe pulses are fortunately very useful for feeding domestic animals.

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* The oil of the cocoa nut, in its separate state, is used as a cosmetic for rendering the skin smooth and soft, leaving no appearance of unctuosity behind it. Cocoa-nut oil is a most important article in the East, being the principal burning oil; and it is used by all classes, previously to a regular washing of the body.

† They are called *pulses*, being pulled or plucked, instead of being reaped.

4. *Grains.*—We have now arrived at the most important division of the farinaceous productions. Although, no doubt, the fruits which we have already considered have been much improved by the ingenuity of man, grains, in a more particular manner, owe their present highly nutritive powers to human industry. For it is difficult to recognise in their wild state, the farinaceous plants of this tribe, which now afford to mankind the principal source of their subsistence.

The grains commonly used as food, are, 1. Wheat; 2. Barley; 3. Oats; 4. Rye; 5. Rice; and, 6. Maize.

1. Wheat is the most perfect, and the most nutritive of grains, and the best calculated for making bread, which will be fully treated of in the sequel. The flour of wheat contains three distinct substances; a mucilaginous saccharine matter, starch, and gluten, which possesses many of the properties of animal matter. 2. In many parts of Europe barley is the principal article of subsistence, and till within these sixty years, it was much used in the midland and western counties of England; but the bread formed from it, though not unwholesome, is darker and heavier than wheaten bread. It should be made into pot or pearl barley, before it is converted into flour. When wheaten bread can be obtained, barley is principally applied to the manufacture of liquors. Converted however, into what is called pot, pearl, or Scotch barley, it is found of great use, as an ingredient in broth. 3. About fifty years ago, it was calculated, that nearly a fourth part of the inhabitants of Great Britain lived upon oat bread *, but the increase of wealth, and luxury, has greatly diminished its consumption. It is supposed, that under an improved system of agriculture, more nourishment *per* acre, may be obtained from oats, than from barley or rye; but they are all inferior to wheat. 4. Rye is a very common grain in the northern parts of Europe; and, indeed, without winter rye, which is a hardy grain, and ripens early, the inhabitants of those countries could hardly exist. Bread made of rye, is of a dark brown colour, and lies heavy on

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* "In truth, the Scottish natives are most patient of want, thirst, heat and cold. Even the men of superior rank can subsist on food of the coarsest kind, when necessity requires them so to do. In their ancient predatory incursions into England, being aware that they would find abundance of animal food, the Scottish warriors fastened to their saddles, a bag filled with oatmeal and a plate of flat iron, upon which they baked their grain into cakes. Laying this iron plate, called a girdle, upon a fire, they spread upon it their meal, made with water into a thin paste, and thus converted it into bread. They could carry a sufficient supply of this for thirty days' consumption, which gave them great advantages over an army whose wants were more numerous." From Major's Historia Botanica, 4to. p. 212.

the stomach, but is nutritious. 5. Rice is a valuable article, and probably furnishes subsistence to a greater number of human beings, than all the other grains put together. It is remarkable for its mild and innocent qualities, sits easy on the stomach, and is well calculated for invalids. It may be used plainly boiled, or mixed with other articles, and converted into a pudding, or manufactured into bread; but, when the last mode is attempted, it must be mixed with a considerable proportion either of wheaten flour, or of oat-meal. In 1799, it was found to be very useful in correcting the bad qualities of both these kinds of food. Boiled rice forms the staple diet of the inhabitants of the warmer portions of Asia, and in particular of the Hindoos; the higher classes of whom being prohibited by their religion from the use of animal food, have been enabled, by the addition of various condiments, to render this otherwise insipid food, highly palatable; and their *curry powder* has now become a regular article of trade. 6. Maize, or Indian corn, is the chief article of sustenance in North America, and some parts of the West Indies. It is also grown in the southern parts of Europe, where a number of preparations are made from its meal, as the Italian *polenta*, &c. Though a nourishing article, yet it does not make fermented bread in any respect equal to wheat.

5. *Esculent Roots.*—These are divided into two sorts; 1. Those which are used as food; and, 2. Those which principally answer the purposes of condiment or seasoning. Under the first division may be classed potatoes, parsnips, turnips, carrots, Jerusalem artichokes, &c. Under the second, onions, garlic, hot radishes, &c.

1. The potatoe is the most valuable of all the articles of subsistence produced under the surface of the soil *. It affords a mild and wholesome nourishment, but not so substantial as the various sorts of grain, and to many individuals it proves highly indigestible. Those who suffer from dyspepsia in any shape, should deny themselves the use of the potato. It would re-

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* The potatoe is the best substitute we possess for bread. It is questionable, however, whether it will support the laborious and active in a state of health, without the aid of some other kind of aliment. It is true, that the lower orders in Ireland, live almost entirely on this article, but it is with the addition of milk; the nourishment which potatoes afford, is not sufficient to enable the Irish labourers to work so hard as the better fed labourers in Britain. During the scarcities in the beginning of this century, many labourers in Scotland, who attempted to live on potatoes alone, were obliged to give them up, on account of the weakness and faintness they occasioned, which, they said, was removed, when they returned to other sorts of food; animal food in particular.

quire a separate work, to do justice to the merits of this valuable root, and to point out the approved methods of cultivating it, the manner in which potatoes ought to be preserved, and the various means by which they are rendered fit for consumption. The best mode of preparing this vegetable for food, shall be afterwards explained.

The *turnip*, as a table vegetable, affords light and wholesome nourishment *. With many people it proves aperient; hence it is useful for those of a costive habit. It appears that the ancient Romans, in the best period of their republic, lived much upon this root. But at present it is more important to the farmer than to the gardener, being cultivated principally for the use of domestic animals. The *carrot* is a more nourishing article; but to many persons it is found difficult of digestion; and it requires the addition of condiments to render it wholesome. It ought to be eaten young, otherwise it lies heavy on the stomach. It is a good ingredient in soups, when grated. To horses and cattle it is a most acceptable food. *Jerusalem artichokes* and *beet root* are seldom rendered important articles of food, but they are pleasant additions to our table vegetables. The *parsnip* is nourishing and easy of digestion, and agreeable to some palates, though many dislike it on account of its sweetness.

Esculent roots however, the potatoe excepted, are seldom used as the sole articles of diet, but are brought to table, principally to qualify animal food. The number of vegetables comprehended under this head, is very great: Mr Bryant of Norwich enumerates above forty produced in this country †.

2. *Roots employed chiefly as seasoning or condiments.*—Of these, the *onion* is the most important, and affords a large proportion of nourishment. It is supposed indeed, that hardly any substance contains so much nourishment, in so little compass ‡.

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* There is a species of turnip which grows in Scotland, called the yellow turnip, which is sweet, and of a superior quality to those produced in the neighbourhood of London, which are bitter and stringy. The yellow turnip is not only nourishing, but also hardy. It is eaten with milk, as a cure for consumption and scurvy.—*Buchan's Domestic Medicine*, p. 641. The Swedish turnip is also, in many respects, a most valuable article. But it is to be observed, in regard to turnips in general, that they disagree with those who have weak stomachs, and who are subject to flatulency.

† In tropical countries, yams, eddoes, and sweet cassada, boiled or roasted, are served up at dinner, and prove useful table vegetables.

‡ It is a well known fact, that a Highlander, with a few raw onions, and a crust of bread, or some oat-cake, in his pocket, can undergo almost incre-

The *leek*, the *garlic*, and the *shallot*, are of the same species, and possess qualities of a similar nature. Condiments in moderation are useful, when the stomach is weak and relaxed and when it requires the aid of stimuli to assist digestion.

6. *Salads.*—Some ancient nations, we are told, ranged the fields and woods in search of food, devouring, like cattle, any wild herb they might find likely to satisfy their hunger *; and certain herbs are still used in a raw state. But there is every reason to believe, that uncooked food is unnatural to the human being; and although some persons, without apparent injury, can eat very considerable quantities of salads and uncooked celery, yet, sooner or later, they find it necessary to refrain from a habit which, in most cases, proves highly injurious to the digestive organs. Of the esculent herbs used in a raw state, the lettuce, from its cooling quality, is one of the most valuable; but being insipid, it is generally eaten with other herbs, in the form of a salad, with the addition of vinegar and oil or cream. The lettuce contains a narcotic principle †; those however, who expect the anodyne effects of lactucarium, from eating the fresh lettuce, should recollect, that the addition of vinegar neutralises the narcotic quality. Lettuce must be eaten young, and ought to be *blanched* or tied up, so as to be deprived of light, otherwise it is acrid. Celery should also be blanched in a similar manner; and whatever difference of opinion may exist, as to the digestibility of lettuce, there can be, at least, no doubt as to the unwholesomeness of raw celery; however agreeable therefore, it may be, to the palates of those who have accustomed themselves to its use, the sooner it is abstained from the better. Celery is perfectly safe in broths, or as a cooked table vegetable, and its flavour is a pleasant addition to most dressed dishes. Of all these herbs, water-cress is the most safe and beneficial; for by operating in some degree as an aromatic stimulant, it assists the stomach, and has a tendency, rather to relieve than to produce flatulency. According to Xenophon, the ancient Persians lived much upon water-cresses, which

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dible fatigue, for two or three days together, without any other sort of food whatever. The French are fully aware of the quantity of nourishment this plant affords; hence the soup *à l'oignon* is considered by them as the best of all restoratives.

* As Lucretius, lib. v. sings,

Quæ sol atque imbres dederant, quod terrâ crearat
Sponte sua, satis id placabat pectora donum.

† Galen, it is said, relieved a state of morbid vigilance, from which he suffered late in life, by eating lettuce every evening.

they considered the most wholesome of vegetable productions. When boiled, they lose their aromatic properties. The radish, in a crude state, is acrid, and should be scraped before being eaten. Sorrel also is used in salads. Endive and succory may be employed in the same manner, provided they are blanched, by which they are deprived of their acrimony.

Salads in general, are rather to be considered as articles of luxury than as aliment. M. Gosse found that the bitterest are the most digestible ; that all of them are more digestible boiled, than raw ; and that vinegar retards their digestion. It is remarkable, that almost all nations have concurred in joining oil and vinegar to this kind of food ; probably from having found by experience, that they were thus enabled, to check its disposition to ferment, and to occasion flatulency *.

7. *Pot-herbs.*—There are many articles, known under the general name of pot-herbs, which cannot be consumed in a raw state, but which are rendered wholesome by the operations of cookery, and are of use, particularly at dinner, by making less animal food necessary. Of these, the colewort tribe is the most important ; and among them, the cauliflower and brocoli are the best table vegetables. The cabbage appears to contain a peculiar essential oil, whence arises the offensive odour of cabbage-water. As this matter is liable to disagree with the stomach, cabbages should be boiled in two waters ; the double purpose being thus effected, of freeing them from a noxious ingredient, and at the same time rendering them an agreeable dish, soft and digestible. White cabbage is preferred for boiling, and the red for pickling. Artichokes †, asparagus ‡, and spinage, are well known as useful articles of diet ; they are easily digested, and not flatulent.

Pot-herbs are of considerable use, as serving to fill the stomach at our meals, without loading it with too large a proportion of nourishment, supplying at the same time fluids to the body, which are indispensable to the continuance of health. They are laxative, and are useful in summer, when the increased discharge by the skin renders constipation common.

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* Adair's Medical Cautions, p. 219. An Easy Way to prolong Long Life, p. 28.

† Artichokes, if young, and properly boiled, are of a tender texture, and furnish very mild and good nourishment.

‡ Asparagus is only wholesome when in an intermediate state, between root and plant. When young, it is sweet and mucilaginous, and highly diuretic ; when old, it is remarkably acrid.

8. *The Mushroom tribe.*—This species of vegetable, belonging to the order *Fungi*, of the class *Cryptogamia*, is so numerous, that the bare enumeration of them, would require a volume; and Sowerby, in giving an account of the English mushrooms alone, of which there are 400 varieties, has filled no fewer than three folio volumes. Many of the fungus tribe are much esteemed in foreign countries, on account of their high flavour; but with us, the garden mushroom is the only one cultivated for food, being also used in the manufacture of catsup. The mushrooms found on old pastures, are more delicate than those raised on artificial beds. Good mushrooms are nutritious, resembling meat in many of their properties; but they can only be eaten, in any quantity, by persons with strong digestive organs. In Russia, the mushroom tribe contributes to the sustenance of many of the inhabitants; they are eaten almost indiscriminately, and are kept salted for winter use. Haller considers mushrooms as a food, the propriety of using which is very doubtful; and he remarks, that when to all appearance innocent, they sometimes prove prejudicial. As vegetable acids are the best condiments to use with them, they are preferable in a pickled state. The truffle is a subterraneous fungus, growing generally in clusters, three or four inches under ground, without any visible root. Truffles are eaten, either fresh, roasted like potatoes, or cut into shreds and dried, and added to ragouts. Morels, also of the fungus tribe, are much esteemed, both in a fresh and in a dried state, and are at the same time a fashionable article of ornament for dishes containing other food; they are less dangerous than the common mushroom.

9. *Marine plants.*—It is surprising, considering our insular situation, that hitherto so little attention has been paid, to the great variety of sea plants with which our coasts abound. As yet, only three articles have been with us used as food, namely, laver, dulse, and the sweet tangle; but in China, we are told, that most of the plants that grow on the sea shore, are found to possess an invigorating quality, and are therefore, in constant use as pickles and preserves, or simply dried and cut, and mixed with soups. The leaves of one of these, apparently a species of the sea-weed, called by botanists *Fucus serratus*, after being gathered, are steeped in fresh water, and hung up to dry. A small quantity of this weed, boiled in water, gives to it the consistence of a jelly, and when

mixed with sugar, the juice of an orange, or other fruit, and set by to cool, it becomes exceedingly agreeable and refreshing *.

Arrow-root, *Sago*, *&c.*—Besides the vegetable substances used individually, there is an article valuable for dietetic purposes, which exists abundantly in the vegetable kingdom, and which is a chief ingredient in the grains employed for food, viz. *fecula or starch.* Starch is procured from grain, or other vegetable matter in which it exists, by dissolving it in cold water and expressing the dissolved matter. The insoluble gluten remains, the saccharine and mucilaginous matters are dissolved, and the starch, being held mechanically in the water, is soon precipitated. Starch therefore, is insoluble in cold water; by boiling water it is converted into a tenacious jelly. Starch is so similar in its nature to sugar, that by some late discoveries it has been ascertained to be easily convertible entirely into saccharine matter.

The Indian arrow-root, (prepared from the *Maranta arundinacea*), has all the characters of pure starch; while sago, which is prepared from a species of palm tree, and tapioca, which is prepared from the root of *Jatropha Manihot*, seem to have heat employed in their manufacture; and, consequently, differ in some degree from starch, being of the nature of what has been called Amidine. As a pure starch can be procured from the potatoe, it follows that potatoe fecula may be substituted for arrow-root, and that the same substance, having heat used in its preparation, might be substituted for sago and tapioca. Salep, which is obtained from the root of the orchis, consists almost entirely of a substance called Bassorine, (which is formed into a jelly by cold water), and a small quantity of gum and starch. It is imported from Turkey and Persia; but the root is not uncommon even in this country, though inferior in point of size, and perhaps in quality.

Iceland liverwort, *(Lichen Islandicus)*, is another valuable alimentary substance; boiled with milk it yields a wholesome and palatable nourishment, much used by the Icelanders. In this country, it is chiefly used, from its demulcent quality, for invalids and convalescents, and, in particular, by those who are afflicted with catarrhal and consumptive affections. Vegetable mucilage, such as gum-arabic, is capable of affording much nourishment, as is evident from the circumstance of whole caravans, when they could procure no other food, having subsisted on it for a long time. The natives of Senegal also, live much upon gum. In France, gum is used as a remedy for the heartburn, and also in pulmonary complaints *.

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* See Barrow's Travels in China, p. 552. This intelligent author, in his account of Cochin-China, p. 133 has entered into a full detail regarding this important subject. In the neighbourhood of Bourdeaux also, I understand that much use is made of marine plants as food. The fuci, steeped in fresh water till deprived of salt, and then boiled, afford a very nutritious diet, and in times of scarcity, might become a valuable resource to persons living on the sea coast. In the Outer Hebrides, where there is an annual scarcity in summer, the people make use of boiled dulse, laver, and other marine plants; and in spring the cattle are in a great measure fed upon a species of fucus.

2. *Animal Food.*

The relative merits of animal and vegetable food will be better understood, after we have considered, under the following general heads, the different classes of animals used as food by man: 1. Quadrupeds; 2. Birds; 3. Fish; and, 4. Amphibious animals.

1. *Quadrupeds.*—The animals of this description generally used for food, and which we shall shortly notice, are the ox, the sheep, the hog, the goat, the deer, the hare and the rabbit.

The flesh of *oxen*, well fed, and of a proper age, is justly accounted the most nutritious of all kinds of animal food, and is easily digested by persons in health. Heifer beef is tender; but that of the cow is tough and unpalatable. It is a curious circumstance, that an old draught ox, if taken up when in a healthy state, and not too aged, and carefully fattened, affords the best beef. *Veal* is tender and nourishing, but like all young meat, is indigestible to weak stomachs. The flesh of wild cattle, is in general much inferior to that of the domestic ox. Beef is now constantly in season, since, by the improvements in agriculture, cattle can always be abundantly supplied with fattening fodder.

Mutton possesses qualities highly nutritious and wholesome, and is perhaps more universally used, and more generally relished, than any other sort of animal food. Wedder mutton is most esteemed, and is generally accounted the sweetest and most digestible; but an ewe, that has not had a lamb the season before she is killed, yields as good mutton as a wedder of the same age. The quality of the flesh depends in a great measure upon the nature of the pasture, and the age of the animal. When fed upon a dry pasture, especially if mixed with wild herbs, and allowed to attain five or six years of age, no meat can be more savoury. *Lamb*, from four to six months old, is excellent food; but house-lamb, the production of modern refinement, is a tasteless and insipid aliment; and, from the manner in which it is reared, cannot be wholesome.

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* Fordyce's Treatise on Digestion, p. 100. Pinkerton's Recollections of Paris, vol. i. p. 200.

The ancients considered *pork*, as the species of food, capable of imparting most strength and vigour to those who fed on it. Hence it formed the chief food of the athletæ of ancient Rome, who complained of a sensible decay, when they disused it for any considerable time. Those however, who are trained to athletic exercises in modern times, are fed on beef or mutton, pork having a purgative tendency; yet it may be considered as yielding strong nourishment, suited to those who lead an active and laborious life. The sucking pig is nutritive, but not digestible, and is by no means a proper food for weak and sickly persons. The flesh of the wild boar, which is totally different in appearance and flavour from that of the domestic hog, is more palatable, and more easily digested. The hog is of infinite value as sea stock; no animal thrives better at sea; it is easily fed, and even the most delicate stomachs find it digestible during a sea voyage. Another advantage is, that there is no difficulty in making the sow breed on board ship.

The domestic *goat* was anciently held in much estimation as food; and in modern times, the haunches of the goat, salted and dried, make excellent hams. The Welsh call it *hung venison*. The wedder goat, (the *hyfr* of Wales, and *aver* of Scotland), under the name of *rock venison*, is supposed to be little inferior to the flesh of the deer *; it is reckoned peculiarly nutritious in soup. In the West Indies, the flesh, both of the ewe and of the wedder goat, is accounted as good as mutton †. The flesh of the *kid* is a great delicacy every where; in the East Indies, it is preferred to lamb, and the Arabian physicians hold it in high esteem.

Venison is certainly not only a delicious, but a nutritive and wholesome food. Fallow deer is, on the whole, the best, though the flesh of the wild stag is the highest flavoured, and very palatable in autumn, when it is in season.

The ancients considered the *hare* as affording the best food of the description we are now considering; but, in these times, it is reckoned dry and heavy. The flesh of the *leveret* however, is nutritive, and digestible; an old hare is only fit for soup, and, as prepared in Scotland, it unquestionably affords material for the very best dish of the kind.

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* Pennant's British Zoology, p. 149.

† Both on account of the quantity of milk it produces, and of the value of its flesh and skin, it is a pity that the West India goat is not introduced generally in this country.

The flesh of the *rabbit* resembles that of fowl, and is equally digestible. The tame is generally fatter and more tender than the wild rabbit; but the latter is far more agreeable to the taste.

2. *Birds.*—It is a very common opinion, that the flesh of birds is more digestible than that of quadrupeds. There does not seem to be any reason to believe that this is the fact. The whiter meat of the domesticated birds contains less nutriment, and is less digestible, than that which is furnished by game; and mutton and beef are more nourishing and digestible than either.

The various sorts of land birds regarded fit for table, may be considered under two heads: 1. The domesticated; and, 2. The wild bird.

The *barn-door fowl* affords a delicate and wholesome food *. It is best when about a year old. Its fat, when kept at large, is interspersed in its muscles; whereas, when the bird is cooped up and fed hastily, the fat is accumulated in particular parts, and the bird is far inferior as an article of diet. *Turkeys* are of the same nature, and equally easy of digestion; they are difficult to rear, but are hardy afterwards. *Guinea* or *Indian fowl* is a palatable article of diet. The *peacock* is seldom eaten in this country, but was anciently a principal part of Roman luxury; and, where it exists in a wild state, as in India, it is, when shot young, a favourite dish. In former times, the *swan* was served up, as a dish of state, at every great feast in England, when the elegance of the table was measured by the size and quantity of the cheer †. *Pigeons* furnish food of a dry and heating nature; they are best when young.

In regard to tame water-fowl, the *goose* is the most cleanly feeder of the tribe; it affords wholesome aliment for strong stomachs. The tame *duck* is more delicate than the goose, but its feeding requires to be attended to.

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* When young, the hen is well calculated for invalids; and in regard to mildness, is nearly equal to vegetable aliment. Young cocks are good eating. Capons, more especially *poulardes*, or hen capons, are accounted particularly delicate.

† Pennant's British Zoology, p. 140. Swans, when young, may be fattened so as to become good eating.

The above subdivision of land and water fowl, is also applicable to the wild birds used for food.

The *bustard*, not as affording particularly palatable food, but as the largest of the feathered game, may be mentioned first; its flesh is coarse, and of little flavour. The *partridge* is much valued as a delicate food; but is not equal, in point of flavour, to *grouse* and *black-cock*, nor so easily digested. The *quail* resembles the partridge, but is apt to lie heavier on the stomach. The *pheasant* is less digestible than the common fowl, but is of higher flavour. The *ortolan* is reckoned one of the greatest luxuries of the table. The *florikin* is considered the most delicate and high flavoured of the Indian game of this description. Among a variety of other land birds which are occasionally eaten, the *woodcock* and *snipe* merit particular notice; they appear to live principally on grubs and worms, and are by many regarded preferable to every other kind of game; they are rich and nourishing, but must be eaten in moderation. There is not a more luxurious dish than a snipe pie *.

As to wild water-fowl, though many of the species are eatable, yet they are generally too fat, and fishy tasted, for any but the strongest stomachs. The *solan goose* or *gannet*, and the *layer* or *puffin*, are remarkably rancid and fishy, and are highly indigestible. The *wild-duck*, the *mallard*, and the *teal* therefore, are the only water-fowl worthy of notice, and these only during the harvest season, when they improve their flesh by a grain diet. The teal is very much prized in India.

3. *Fish.*—The importance of fish † in diet, has been much doubted. According to some, a fish diet is highly digestible and nourishing; while others regard it as indigestible, and as

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* It is well known that exercise produces firmness of flesh; this is particularly exemplified in the woodcock and the partridge. The woodcock is obliged to fly much about, while the partridge walks more and flies less; hence it is observed, that the wing of the woodcock is always very tough, while that of the partridge is very tender; and on the contrary, the leg of the woodcock is very tender, while that of the partridge is very tough. Hence the old doggrel distich:

> "If the partridge had but the woodcock's thigh,
> He'd be the best bird that e'er doth fly."

† The inhabitants of *Caramania* and *Gedrosia*, provinces of *Persia*, not only fed themselves, but their flocks, on fish; and were therefore called by *Herodotus* and *Strabo*, Icthyophagi, or fish-eaters. The *Egyptians*, whilst the Israelites resided in that country, lived partly on fish; and the *Banians*, in some parts of India, eat no other animal food. It is fortunate to have such a resource in a populous country, where scarcities may occasionally occur.

possessing very low nutritive qualities. Fish is certainly less nourishing than flesh, and is with most people less digestible; at the same time it is a food well calculated for those who lead a sedentary life, and are of a full habit of body. In fact, it calls forth the powers of the stomach without over-nourishing the system *. It should however, be regarded as only a portion of food, since a diet composed entirely of fish is far from being wholesome. Fishermen never eat fish, if they can obtain any other kind of food; and their families, if confined to that species of diet, become feeble, and covered with eruptive diseases. To the wealthy, fish are a useful luxury, by counteracting the effect of too much highly nourishing food. As forming a chief part of the diet in Lent, they serve a good purpose, by preventing the too rapid consumption of young animals, at a period of the year, when adult animals are out of season. Let it be remarked, that no fish is eaten without some sauce, generally rich and savoury, which is often a cause of indigestion. Fish are improved by being boiled with salt. Many of the annual emigrants to the sea side materially injure their health by living too much on this species of food.

Fish may be arranged in three classes: 1. Fresh-water fish. 2. Salt-water fish; and, 3. Shell fish. It is proposed merely to touch on some of the principal sorts of each species, and to add some general rules regarding their consumption.

1. The *salmon*, though it inhabits principally the sea, may be included among the river fish, being generally caught in fresh water. It is highly nutritious, but not easily digested; no food can be more delicious than the small-sized salmon of a mountain stream. The *trout* and *salmon-trout* are more delicate, but not so nutritious. The *red-fleshed lake trout*, as the *Lochleven*, is a delicate and palatable fish. *Eels* are nourishing, but difficult to digest. *Carp* and *tench* are reckoned wholesome. The *pike* or fresh-water shark, if not too large and very old, is firm, palatable, and wholesome; but the greatest care must be taken, to avoid swallowing the bones, which are sharp and forked, and of a texture so peculiarly hard, that they do not dissolve in the stomach; hence they are apt to injure the alimentary canal, and indeed have been known to produce *fistula in ano*. This fact is not so generally known as it ought to be.

2. The salt-water fish are in general more wholesome than

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* As a proof how little substance is to be found in fish, it is to be observed, that the jockeys, who, to reduce their weight, *waste themselves* at Newmarket, are not allowed meat, nor even pudding, when fish can be got.

river fish. Of these, the *herring*, the catching of which gives occupation to thousands, is the most important, affording, both in a fresh and salted state, an article of diet of very extensive consumption among the poorer classes in this country. The *cod* is a valuable fish, and, when fresh, furnishes palatable, digestible, and wholesome food. The *whiting* is tender and delicate, and may be given to persons of the weakest stomachs. The *haddock* is firm, and, when in season, is perhaps the best of the white fish. The *mackerel* is dry, and little nutritive. The *flounder* tribe are of an oily and juicy nature, but are not digestible. The common flounder and the *sole* are tender; the *turbot* and the *halibut* are well flavoured, and in season wholesome fish. M. Gosse found, that the stomach digests *skate* very slowly ; others have experienced the same circumstance in the use of the *sturgeon*.

3. Shell-fish are commonly accounted great delicacies, though they are not in general found digestible, and are therefore usually eaten with vinegar. In some constitutions, they produce heat, anxiety, and fever ; and most of them occasion great inconvenience to weak stomachs. The *crab* is so heavy, that it is seldom eaten without the addition of acids and condiments. The *lobster* and *shrimp* are generally used in sauces. The *cockle* is rather insipid, and the *mussel*, though a savoury food, yet sometimes produces disagreeable consequences. This however, it is said, may be prevented, by washing them well in vinegar and water. The mussel appears sometimes to become poisonous ; and there is an instance recorded in the Ed. Medical and Surgical Journal for January 1828, in which a number of individuals were attacked with the most alarming symptoms, apparently in consequence of the use of this description of food. The *oyster* is considered to be a great delicacy, and many people can consume great quantities of them in a fresh or raw state. They are capable of being prepared for table in an infinite variety of forms, as in patés, pies, curry, scalloped, &c. &c. When dressed, they are less digestible, than in a raw state. They form a very useful sauce, for other animal food of an insipid nature, both fish and fowl *.

The following rules have been given regarding the consumption of fish. 1. Fish having a stronger tendency to putrefaction than meat, should be dressed as fresh as possible.

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* Oysters are reckoned nourishing, without being heating : and are very proper in consumptive cases, or for people who are recovering from a fit of sickness, whose weak stomachs will not digest flesh meats, &c. No diet will sooner restore strength, than oysters and beef-steaks.

2. Fish should be eaten quite hot, and never, (oysters excepted), in a raw state. 3. It is highly injurious to health to live entirely upon fish. 4. Fish should not be eaten too often, nor after other solid food. 5. Fish that have least flavour, that is, such as have least oily matter in them, as the haddock, the whiting, &c. digest much sooner than such as are of a stronger flavour. 6. Fish is rendered much more palatable by the addition of butter-sauce. 7. Fish and milk should not be taken at the same time. 8. Fish should not be eaten with any vegetables, except the potatoe. Cullen says, that by way of experiment, he has taken apples after fish, but found digestion disturbed. 9. Fish are much influenced, both in their flavour and wholesome qualities, by the nature of the water, in which they are bred and live; the fish taken from pools, muddy lakes, marshes, and stagnant water, are generally unpalatable, and may be regarded unwholesome. 10. Fish, whether of fresh or salt water, ought to be preferred of moderate size; when their flesh is hard and dry, or ill coloured, they are not wholesome, good fish being crisp and tender. 11. It is said, that poisonous qualities in fish may be detected, by boiling a silver fork or spoon along with them, which becomes tarnished. This is a necessary precaution with fish caught at sea, which sometimes prove poisonous *.

12. Fish must never be eaten when out of season. This is an important rule; for fish, which are palatable and nutritious when in order for table, may prove exceedingly unwholesome when out of season. When the flesh of fish, when cooked, is firm, opake and curdy, it is in the highest perfection for the table; when, on the contrary, it has a shining blue appearance, it is out of season.

13. By *crimping*, fish are rendered more palatable and digestible, and are longer of becoming soft.

Various opinions are entertained, not only by individuals, but in different nations, as to the condiments, or sauces, which ought to be eaten along with fish; and here, as in all questions in which the powers of the stomach are concerned, it is exceedingly difficult to lay down rules generally applicable. The Spaniards take a glass of cold water after a fish dinner, and the Scotch expect a dram of whisky. As already observed however, much of the indigestion which is so often ascribed to fish, may, with much more truth, be attributed to the very rich, and luscious sauces which are used along with them. A little butter and mustard is the most wholesome sauce for white fish; while for the salmon and red lake-fish, nothing can be better than a little of the water in which they have been boiled. The propriety of adding vinegar to fish, depends on the usual effect of vinegar on the stomach of the particular individual; the same remark applies to other condiments and sauces.

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* See some interesting facts on the subject of fish, under the head Fishermen, *Analysis Statistical Account of Scotland*, p. 201.

4. *Amphibious Animals.*—The animals of an amphibious nature which are brought to table are not very numerous. The turtle is the only one which merits particular attention. Of the turtle, there are four sorts, but the sea or green turtle is that most commonly used for food; its flesh is wholesome and delicate. When cooked in a simple way, it cannot fail to prove highly nutritious; but when exposed to all the refinements of the culinary art, and united with a number of heterogeneous articles, it is to most people rendered very indigestible. The esculent frog is in flavour much like a chicken.

In hot climates, some reptiles, and also some of the insect tribe, are used as food by the inhabitants. Of these, the guana, a large lizard, is particularly prized; and even strangers find it very delicate aliment. In India, the white ant is eaten by some casts of Hindoos, and in some countries locusts are resorted to as food.

5. *Miscellaneous articles, connected with Animal Food.*—Besides the flesh of animals, there are some articles of solid food derived from them, which it is necessary to touch upon: these are, 1. Butter; 2. Cheese; 3. Eggs; 4. Honey; and, 5. A particular species of nest.

Butter is a most valuable article; indeed it may be regarded a necessary of life. Cream, in a raw state, cannot be taken in considerable quantities, from its tendency to get acid and rancid, and consequently to become difficult of digestion; but in the form of butter, it may be used with advantage. Butter, when melted, may be safely used with such vegetables as are naturally dry; it also makes an excellent sauce for various sorts of fish. Butter is improper for children, and for the dyspeptic; and it should be used by all in moderation *.

Cheese is used either as food or as condiment. As food, it is only suited to those who take great and constant exercise. It is not good for children, or for those who have weak stomachs; still it is very extraordinary, that we sometimes find instances of individuals being able to consume a very great quantity of cheese, whose digestive organs are apparently very weak. *Cream-cheese* is very unwholesome, being liable to rancidity. When cheese becomes old and putrid, it ceases to be nutritive, and can only be considered as a condiment.

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* Butter may be made, either from the cream alone, or the entire milk. In the latter case, the butter-milk furnishes an admirable food for the children of the poor, and that practice should be as generally adopted as possible.

Eggs contain a large proportion of pure nourishment, and when new laid, are a most valuable species of food, not only when consumed by themselves, but when mixed with other articles. Indeed those whose palates are not vitiated by luxurious indulgences, cannot have a more delicate repast. Eggs are injured by exposure to the air, and they should therefore, immediately on being laid, be coated with butter or some other substance, capable of protecting them from the influence of the atmosphere. Raw eggs are gently laxative, and have been prescribed in cases of jaundice and obstructed liver. Eggs are generally regarded most palatable when soft-boiled in the shell; and this is in truth the best way of dressing them. Hard-boiled eggs may be regarded as a condiment, and they are a pleasant addition to fish sauce, salt fish, pillau, salad, &c., though certainly far from being digestible *. The food of the hen, influences materially the flavour of her eggs; the best eggs being produced by hens fed on grain, and particularly if they be allowed to range freely in the neighbourhood of heath.

Honey is a most valuable animal production, though it does not agree with every stomach. Sir John Pringle called it the juice of long life or immortality. An ancient philosopher, (Democritus), being asked, when he had reached one hundred years, how he had contrived to live so long? answered, By the application of oil without, and honey within. Pythagoras, noted for his great age, and the enjoyment of health with it, lived much upon honey; and both Pliny and Dioscorides call it *utile senibus*. It is also found useful in medicine. To many constitutions however, honey is almost poison. This may be counteracted by boiling and skimming; but it should always be used with caution †.

There is a singular substance, which a species of swallow uses in constructing its *nest*, apparently consisting of sea-worms and other gelatinous marine articles, which bears some affinity to isinglass, and is esteemed a great delicacy by the Chinese, the Cochin-Chinese, and the inhabitants of various islands in the Indian ocean. In this country we know little or nothing of these nests as an article of diet; but in China they are reckoned a very great luxury, and are purchased at an exorbitant price.

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* Falk's Guardian of Health, p. 130.

† Honey is often injurious from the bees having access to poisonous herbs, raised in gardens and pleasure grounds. The generally wholesome nature of heath honey, is ascribed, to the absence of poisonous flowers among the heather.

Observations regarding Animal Food in general.

Animal substances, as we have already observed, form a natural portion of the food of man; and however unphilosophical it may be to assume, that all things were formed for the use, or convenience of man, still the opinion is a natural one; and it is strengthened by the capacity with which we seem to be endowed, of converting most of the productions of nature to our use. On the subject of food, the Poet has well said,

> "Nor the green herb alone,
> Unequal to sustain man's lab'ring race:
> Hence every moving thing that lives on earth,
> Was granted him for food *."

Nothing, therefore, can be more useless and even ridiculous, than attempts of philosophers or of lawgivers, to limit the alimentary consumption of man, to the vegetable kingdom †. Although certain religious tribes within the tropics have been enabled to restrict themselves to a vegetable diet, still this cannot be considered as a natural system, although it is not impossible that a tropical climate may render such mild food, when combined with an easy life, sufficiently nourishing for the body.

In the choice of animal food, we should always consider, whether it is in season or not; for the meat, which at one period of the year is good, may at another be hurtful. For example, pork is a wholesome food for many people in the winter season, who in summer find it exceedingly indigestible. By the attention however, now paid to the feeding of domesticated animals in this country, those who deal with honest tradesmen, run little risk of purchasing animal food when the flesh is in an unseasonable condition. Still it is unquestionable, that the proper time for using the meat of each class of animals is, when their natural nourishment is in the greatest plenty. As to the predilection for the insipid meats, prematurely killed, as house-lamb, so much the fashion with the luxurious, it cannot be sufficiently reprobated, for this, as in every other case of forcing nature, is extremely apt to produce unwholesome aliment.

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* Somerville's Chase, book 1.

† Dr Franklin had for some time adhered closely to a diet purely vegetable; but in the course of a voyage he had taken from Boston to Philadelphia, some cod were caught, which were dressed on board, and the flavour of which seemed so delicious, that he broke through his vegetable regimen, and ever after continued to eat like the rest of mankind, recurring only occasionally to vegetable diet. Some small fish had been found in the belly of the cod, which led him to reason thus: "If you eat one another, I see no reason why we may not "eat you."—*Franklin's Life, written by himself*, p. 91.

Every animal destined for slaughter, ought to be killed in a state of high health. Although it is no longer the law, to have the bull baited before he is allowed to be killed for the market, still it is certain, that the manner of death has a very material influence on butcher meat. Animals hunted to death, for instance, are peculiarly tender, and the same effect is produced by a lingering death. It was for this reason probably that the barbarity of whipping pigs to death, was practised by the Germans. Vinegar, administered to an animal some hours before killing it, is also known to render its flesh less tough. It is a common practice in the country, to give a spoonful of this acid to poultry, when they are intended for immediate use. When the ox however, is over-driven before being slaughtered, its flesh is apt to become exceedingly unwholesome.

It is thought necessary to deprive domesticated animals, as much as possible, of their blood, when killed, not because blood is an unwholesome article of food, but as the meat is thereby preserved longer from putrefaction. By over-driving animals, immediately before slaughter, the blood cannot be emptied by bleeding. The meat is thus rendered heavier, to the profit of the butcher, but to the injury of the consumer.

Meat which has been hung up for a considerable time before being dressed, is rendered more tender, palatable, and easier of digestion. It is said indeed, that a person may eat double the quantity of meat, which has been kept till tender, than he can if it has been newly killed. The nourishing qualities of meat however, seem to be injured, by keeping it too long before it is cooked.

The French, it is well known, do not relish animal food, unless it partake strongly of the *fumette ;* but they eat a considerable proportion of bread with it, which, with their small wines, may correct putrescency *.

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* Adair's Medical Cautions, p. 202.

Some parts of animals are more tender than others, and more easily digested, as the head, the tongue, the udder, &c.; others are more difficult of solution, as the external muscles, the stomach, and liver. These last however, are the most proper food for persons of strong stomachs, and quick digestion.

The essential oils of vegetables, are often agreeable to the stomach, and stimulate it, so as to forward digestion ; but animal oils, are not equally digestible. Hence pork, geese, ducks, salmon, &c. containing much oil, may be acceptable to strong stomachs ; but ought not, even by persons in robust health, to be eaten in great quantities, and will be found almost invariably to disagree with those who have weak digestive organs. Animal fat however, ought not to be totally rejected; for though oily matters, in large quantities, may oppress the stomach, yet as oil constitutes a very considerable part of our food, both animal and vegetable, and as a large quantity of oil is deposited in various parts of the body, in the form of fat, it can hardly be supposed, that this article should be inimical to health.

It would be needless to attempt to lay down rules, as to the digestibility of different kinds of food, applicable to every stomach, for it is unnecessary to say, that what agrees with one person may be wholly indigestible to another. The most generally digestible article of our usual food probably is mutton. Beef is less so, but still it is highly digestible. What may be called dry meat, is more indigestible than moist; thus, lean animals are harder of digestion than fat ones *. Owing to the same circumstances, meat roasted a great deal, is not so digestible, as when done but little, the fluids being expelled by heat, and the fibres being contracted †.

It must however be kept in mind, that the food which an individual generally finds highly digestible, may, under particular circumstances, become an insoluble load in his stomach. This may arise from the age, feeding, state of health, or manner of death of the animal, or from the length of time it has been kept before cooking, the manner in which it is dress-

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* Dr Stark found, that the lean of meat is more digestible than the fat, which proves how well calculated fat meat is for the more laborious classes. There are some insulated facts regarding digestion, in his work, p. 94, which he would probably have brought into a regular system, had he lived longer.

† Easy Way to prolong Life, p. 36.

ed, the condiments taken along with it, &c. All these points therefore, should be attended to, by those whose digestive organs are in a delicate state.

Comparison between Vegetable and Animal Diet.

It is hardly necessary, after the many observations which we have made on the merits of vegetable and animal food, that we should now enter at large, into the question of their comparative value as sources of aliment. It may be observed generally, that although, as has been already said, man is to be considered as fitted for a diet, composed of both animal and vegetable matter, still the quantity of each, which should be taken, is influenced, in a very material degree, by the following circumstances: The age of the individual: The season of the year: and, Climate.

The age of the individual.—Although our digestive organs are prepared for a mixed food, it seems certain, that in the earlier periods of life, a diet principally vegetable, assisted by certain animal productions, is much more wholesome than the reverse. It ought therefore to be a rule in the feeding of children, to apportion them, according to their age, a greater or less quantity of animal food. It will be found, that in very early childhood, the various farinaceous productions with milk and eggs, and a moderate portion of meat infusions, afford the diet most likely to give immediate health, and to assist in the growth, and other changes which are constantly going on; such a diet being best calculated for the gastric powers of a child. As years advance, animal food becomes more necessary, when the proportion of it can be gradually increased.

In manhood, of course, the full proportion of animal food will be allowed. We are, at this period of our life, apparently prepared for, and indeed require such highly nourishing food as animal diet affords. As life advances, and as the teeth drop out, the second childhood seems to call for a return, to the blander and more easily masticated description of food. The aged therefore, should lessen the proportional quantity of animal diet, and increase that of the vegetable.

Season of the year.—Man is too little in the habit of attending to the admonitions with which Providence has favoured him. This is particularly true with regard to diet. Before the advance of knowledge and civilization had rendered us, as to vegetables and animals, to a certain extent independent of climate, the productions of the season would, of course, afford to mankind, as to other animals, the food proper for that time of the year, and animals as well as vegetables have their seasons. According to the admirable arrangement therefore, which pervades all the works of nature, we may safely conclude, that the natural productions of the season, are those best calculated for preserving health and strength, during the period of the year in which they are in perfection.

It would, of course, in the present state of civilized life, be idle to propose to regulate our diet by rules deduced from these conclusions; but at the same time, they must be kept in view in reference to health; for however satisfactory it may be, to obtain the spring vegetables in autumn, or the summer fruits in winter, we may rest assured, that the smaller the portion of these unseasonable articles which is consumed in a climate, or at the season of the year when they do not naturally come to maturity, the better.

Keeping these observations in view, we should say, that the quantity of animal food ought to be greater in the colder seasons of the year, than in the summer; that the meat of young animals, and new vegetables, are safer in spring, and in the early part of summer, than at any other period of the year; and that fruits ought to be eaten in very great moderation when not in season.

Climate.—The luxuriance and perfection of the vegetable kingdom in hot climates, would naturally lead us to believe, that in those regions, vegetables ought to form the chief ingredient in diet; and that the Brahminical rules are not so unnatural, as some have been inclined to regard them. It is at least certain, that within the tropics, animal food is not found in such perfection, as in the temperate zones; while, from the impossibility of keeping it a sufficient length of time, to improve it after death, and from the instinctive disgust which the inhabitants of hot climates feel, at the least approach to putridity, it is exceedingly difficult in low latitudes, to procure animal food in perfection. Within the frigid zone again, there is but a very short period of the year during which vegetable food can be procured at all, and hence the inhabitants are necessarily carnivorous.

The deductions to which these considerations lead seem to be supported by experience; and we may safely conclude, that the human frame is rendered more capable of resisting the effects of an exceedingly low temperature, by an animal diet; and that within the tropics, health will be best maintained, by the temperate use of this description of food, whether by the natives or by strangers.

Those who have discussed the comparative merits of an animal and a vegetable diet, have not sufficiently considered the points we have just adverted to; and they have therefore supported their opinions, by reference to particular instances, without considering the influence of situation and of circumstances. As digestible food of every description, whether derived from the animal or vegetable kingdom, is converted into blood, it may be inferred, that the several species differ from each other only in the nutriment they afford, in a given quantity, and in the ease or difficulty with which they are digested; and nothing can better display the difference between nutritive and digestible food, than the effects of an animal and of a vegetable meal. They may both occasion *the fever of digestion* as it is called; but in the one case, the fever is produced by an over stimulus to the system generally, in the other, it is the effect of indigestion; the explanation of which is, that as animal food differs little from the structure which the result of digestion supplies, it calls for little energy in its assimilation, and by rapidly stimulating the system, brings on a febrile state *; whereas, the stomach is not only called upon to exert all its energies, in digesting vegetable matter, but the process being prolonged, the local excitement soon involves the system generally; so that, from totally different causes, an animal and vegetable meal may produce nearly similar immediate effects. The courses run by these two disorders, are however, very different. The fever occasioned by an over-stimulating diet, may be prolonged, until serious injury to the system ensues;—that consequent on difficult digestion, manifests itself within the time required for the process of digestion, and is usually terminated, if digestion do not at last take place, by the discharge of the contents of the stomach by vomiting; or the undigested matter is passed on to the bowels, and may there become the source of derangement.

There is another point requiring consideration with reference to animal food. From the superior nutritive qualities of this description of aliment, it is evident that its use ought to be accompanied with much bodily exercise; and it will be found, that a full animal diet, to persons who lead a sedentary life, will soon produce oppression, and ultimately disease. The late Sir Edward Barry, prevailed on a man to live for eight days on partridges, without vegetables; when he was obliged to desist, from alarming symptoms of putrefaction making their appearance *. The result of this experiment shews, how necessary it is, that animal food should be qualified by a due proportion of vegetables, for by a mixture of both, the blood best calculated to nourish and strengthen the body is formed.

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* The most direct proof of the different digestibility of alimentary substances has been afforded by individuals, who have, in consequence of wounds, had fistulous openings into the stomach. Thus, in the case of a patient who was received into the general hospital at Vienna, with a perforated stomach, it was found that flesh meat was constantly digested with expedition and ease, but that vegetables, in general, were much longer in undergoing this process.—*Beddoes' Hygëia*, vol. ii. Essay viii. p. 19 and 20.

In our own climate therefore, a diet consisting entirely of animal food, unless under particular circumstances of disease, is not to be thought of †. And even an over proportion of animal diet, will be extremely liable to produce a tendency to scorbutic, inflammatory and apoplectic diseases ‡.

We need not say, that it is possible for man to live entirely on a vegetable diet. This is sufficiently proved by the Brahmins of India, and by the natives of some parts of South America §. But in this country, where few of the inhabitants are exempted from the necessity of giving full employment to their bodily or mental powers, it is far from being advisable to attempt abstinence from animal food. The principal objections to vegetable diet, may be summed up as follows: 1. It has a tendency to produce acescency in the stomach; 2. The nourishment which it affords bears but a small proportion to the quantity consumed; 3. It is apt to generate air in the stomach; and, 4. It is likely to produce derangements of the bowels.

An undue preponderance of animal diet, has the effect of stimulating, in too great a degree, the circulating system, and consequently, has a tendency to injure the brain, and indeed all the more important organs; while a diet in which vegetables have too great a proportion, is liable to produce stomach and bowel complaints.

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* Adair's Medical Cautions, p. 202.

† In *Diabetes*, or that disease, in which the strength of the body is removed from the system by the kidneys, there is sometimes prescribed a diet, consisting entirely of animal food; but it is said that patients find it impossible to persevere, for any length of time, in the use of that diet.

‡ The following fact is instructive. It is said that butchers, although so much exposed to the open air, never die of consumption; but that many of them die, at an early period of life, of apoplexy.

§ The celebrated Franklin, in his younger days, partly on the recommendation of Tryon, and partly from economical considerations, took entirely to a vegetable diet. His frugal meal frequently consisted of only a biscuit, or a slice of bread and a bunch of raisins; or a bun from the pastry-cook's, with a glass of water; and he mentions, that his progress in study was proportioned to that clearness of ideas, and quickness of conception, which are the fruit of temperance in eating and drinking. See Life of Benjamin Franklin, written by himself, p. 39.

In short it is evident, that as our various digestive organs are prepared for aliment, partly animal and partly vegetable, so is our system, mental and bodily, kept in the best state of health, by a mixed diet; and the only question remaining to be discussed, relates to the proportion, which these two descriptions of food ought to bear to each other. On this subject, it is hardly possible to lay down any rules generally applicable, as the constitution of each individual, his previous habits of life, and his present state of health, must in every case regulate the relative quantity of animal diet. We may observe however, that as the stomach requires a certain quantity of food, it should be the object of those who are little exposed to fatigue, to avoid overloading it with aliment of too nutritive a character *. The inhabitants of towns will generally find the use of animal diet once in twenty-four hours, sufficient for the health of the system.

In hot climates, or during hot seasons, the proportion of esculent vegetables, properly dressed and assisted by condiments, should be greater, while in cold countries, or during cold winters, the animal portion of diet should preponderate. Of course these observations apply to persons in full health; the physician may find it necessary to disregard all such rules in the treatment of disease †.

SECT. III.—*The Means of preserving Food till consumed.*

ORGANISED bodies in general, as soon as they are deprived of the means of continuing life, begin to undergo a new series of changes, which sooner or later end in putrefaction. And it should be the object of those, who are engaged in preparing food for consumption, to be able to say, at what particular period each article of diet, will be in the state best fitted for use.

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* Mr Slingsby lived many years on bread, milk, and vegetables, without animal food or wine; he had excellent spirits, was very vigorous, and was free from the gout while under that regimen. Dr Knight followed the same plan with equal success. See the Works of William Stark, M. D. p. 93.

† Barry observes, that the great difference between a strong and weak constitution is, that the former can assimilate food of difficult digestion into a healthy serum, and discharge the superfluous quantities, while the other is oppressed, and variously affected by it. *Barry on Digestion*, p. 91.—Hence he contends, that animal diet, being more easily assimilated than vegetable, is better calculated for weak coustitutions; and that persons with a strong constitution, who take much exercise, can best digest, and more safely live on a diet of the vegetable kind, and water for drink, than those of weaker stomachs. Ibid. p. 110.

Some articles of food cannot be consumed too soon after they are obtained, such as milk, fish, and most of the more delicate vegetables. We may also add eggs and fresh butter. There are some kinds of fruit however, such as the pine-apple, the orange, and the pear, which should be pulled before they are perfectly ripe; and which afterwards ripen. In warm climates, animal food ought to be used as soon as possible after the animal is killed. As meat, where the climate permits, is rendered not only more palatable, but more digestible, by being kept until it is tender, animal food, in this country, should not be eaten, until it has been preserved for some time, varying according to the season of the year. In regard to game and venison, this rule is often carried so far, as to render them unwholesome, and almost unfit for use.

It is impossible to lay down rules on this subject, as, without reference to differences of taste, and the condition of the animal itself when killed, the moist or dry state of the weather has a most material influence on the progress of putrefaction. When butcher-meat yields readily to the pressure of the finger, it may be considered ready for use. And when the larger feathers of poultry are easily drawn out, it has been kept quite long enough.

The larder in which fresh meat is kept, should have the advantage of free ventilation, and of a dry situation, being contrived so as to exclude flies.

The above observations apply to food which is to be eaten soon after slaughter, in a fresh state. The various means which are resorted to, to preserve food for future use, may be classed under the following general heads: 1. Drying in the sun; 2. Drying by artificial heat; 3. Salting; 4. Pickling; 5. Preserving by butter; 6. By sugar; 7. By ice; and, 8. By various other substances.

1. The simple process of drying by exposure to the sun and air, was probably the first means resorted to of preserving vegetable or animal food. Drying grapes, is an operation, which nature itself performs in hot climates; and it is reasonable to suppose, that this would furnish a hint of the means by which animal food might be preserved. Thus also, the inhabitants of the sea-shore, after they had discovered the means of catching fish, would soon ascertain, that they might be easily cured, by exposure to the sun and air.

In hot climates, the natives very generally preserve food by exposure to the sun, and when properly done, it may be kept for any length of time. The usual manner of doing this is, immediately after the animal is killed, to cut the meat to be preserved, into stripes, when it is hung up in the sun, and the flies are kept off from it. We are assured, that meat, when thus preserved, is exceedingly palatable.

2. Smoke and artificial heat are probably a very old method of preserving food, particularly in inland countries, and where salt was scarce. Smoke-dried meat, although agreeable to many palates, is far from being digestible. Artificial heat, by expelling the juice of fruits, deprives them of the tendency to ferment, so that they are rendered fit to be kept for a considerable time.

3. Salting is a process of very general use, though almost entirely confined to animal food. Sour crout, and salted mushrooms, the former used in Germany and the latter in Russia, and salted olives, are almost the only exceptions. The animal substances best calculated for salting, are those which possess in their composition a large proportion of oil or fat. On this extensive subject, the following observations occur: 1. Salt should be applied as soon as possible after the animal is killed: it is thus that the Dutch cure their herring in such perfection; and the rule will be found applicable to every description of food. And indeed, it should be acted upon, wherever salted provisions are manufactured. 2. Nothing can be of more importance in this country, than attention to the salting of meat. It is now perhaps of less consequence to a family, whether their winter's round of beef, is successfully salted or not, our improved markets and easy communication from one part of the country to another, rendering such a loss easily reparable *. But when we look to the number of our fellow-subjects, who in this great shipping nation, are constantly dependent on salted provisions, every improvement in this important manufactory, must be regarded as a blessing, not to ourselves only, but to the whole world. Every encouragement ought therefore to be held out, for rendering the process perfect; and knavery or neglect, in preparing sea stock, should be severely punished. It is very certain, that the tremendous sufferings from scurvy, formerly so common on sea voy-

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* Of old, from the great scarcity of winter food, the inhabitants of this country were obliged to salt their provisions, and lived, during the winter season, principally on salted meat, without much vegetable food. They were, of course, much afflicted with scurvy.

ages, were in a great measure to be attributed, to the little nourishment afforded by imperfectly cured meat. 3. For the use of working people, provisions lightly salted are preferable to fresh. The porters and coal-heavers of London, who consume much animal food, and drink great quantities of porter, think it more salutary to live upon salt-meat, as it does not digest so soon as the fresh, and is not so apt, they say, to produce fluxes *; and robust ploughmen, who have quick digestion, are more properly and more safely fed on bacon, than on the more digestible foods, provided it is duly qualified by vegetables †. 4. Cadogan asserts, that the same salt, seasoning, and smoke, which harden and preserve salted meats from putrefaction, before they are eaten, keep them from solution after they are taken into the stomach, so that they are never properly digested at all, and that it is not possible that any good nourishment should come from them ‡. Dr Falconer, on the other hand observes, that many valetudinarians, whose stomachs could not bear a piece of veal, lamb, or chicken, from their flesh being of so viscid a nature, have easily digested a piece of ham or dried beef, which proves, he thinks, that salted meat is not so difficult of digestion as Cadogan and other authors have maintained §. 5. It is also urged in favour of salted meat and fish, that though they are less nutritive, yet they are more digestible, the salt stimulating the stomach. This is not the case however, if they have acquired any degree of rancidity. M. Gosse found that fried bacon and eggs were very indigestible, the eggs, in particular, becoming alkaline in the stomach, yet that lean salted beef proved easy of digestion. Salted meat therefore, can only be very injurious, when imperfectly preserved, or when, by long keeping, the putrescency of the meat prevails over the preserving power of the salt ||.

4. Pickling is properly performed by the use of vinegar

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* The London porters are however, extremely liable to ulcerated limbs and scorbutic affections.

† Adair's Medical Cautions, p. 186.

‡ Cadogan's Dissertation on the Gout, p. 54. He goes so far as to say, (p. 58), that the substances we feed upon, ought all to be in a perishable state, otherwise they will never furnish the materials of good blood. He considers whatever is hardened or seasoned unfit for food.

§ Falconer's Observations on Cadogan's Dissertation on the Gout, p. 63.

|| It is impossible however, to go so far as Bacon and Boerhaave. The first recommends flesh and fish powdered and salted, rather than fresh meat. See Code of Health, 2d edit. vol. iii. p. 171; and Boerhaave, for prolonging life, prefers dry and salted meat, also salted and old fish, and in general every thing that is dry, hard, and tenacious; because he thinks, they are in that state better fitted to resist putrefaction.—*De Dieta ad Longævitatem*, Num. 1057.

and aromatics *. It is applied both to animal and vegetable substances. In the first case, it is intended for food; in the second, as condiment or seasoning. Pickled salmon is by many much prized: when eaten cold, it is reckoned heavy; but it can be warmed again, by steam, when it resembles fresh salmon, with the addition of vinegar.

5. The principal difficulty in preserving meat, being the total exclusion of the air; one mode of effecting this, is by *potting*, as it is termed; the meat or fish being put up in pots of earthenware, and covered with melted butter. This plan is not carried to any great extent.

6. Many articles, particularly fruits, are preserved by sugar, either in a dry or in a semifluid state. This includes a material branch of the art of the confectioner. M. Gosse found, that fruits boiled with sugar are very easy of digestion, and that any tendency to fermentation in fruits, is greatly corrected by the addition of sugar and spices.

7. The art of preserving meat, fish, &c. in ice or snow, has long been known in various countries, as in Russia, Spain, and China, and has been more recently applied in Great Britain, to preserve salmon, so as to admit of their being conveyed from the remotest parts of Scotland to London; a plan originally recommended by that patriotic Scotchman, the late George Dempster, Esq. of Dunichen. The fish are, immediately on being caught, packed in ice, and may in this way be kept perfectly fresh for any length of time. It is remarked, that unless the ice is very gradually dissolved, the fish are apt to lose the firmness of their texture.

8. Meat might probably be preserved by means of gum, or in meal. It is well known, that a leg of mutton has been, for a length of time, kept in a fresh state, by means of oatmeal †. It is said, that game or poultry may be kept longer

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* Slight salting is also called pickling. In Scotland, they use a very appropriate term for slight salting; they call it *powdering*, and sometimes *corning*. There is no better mode of eating boiled beef than in this state. That preparation called *brawn*, made from the flesh of an old boar, is obtained by means of pickling with salt. It produces an article, insipid and horny, and which none but the strongest stomachs can digest.

† Charcoal being a great enemy to putrefaction, I had imagined that, by means of pounded charcoal, meat might have been preserved. But from an experiment made by Mr Spence of Drypool, Hull, it appears, that though antiseptic substances, such as charcoal, may depurate recently tainted meat, and preserve dead animal matter in a fresh state for a short time, yet that they cannot be substituted for salt; because, being capable merely of application to the surface of the substance to be preserved, they are insufficient to prevent a new chemical arrangement of its internal parts; salt, on the contrary, by intimately combining with every particle of the meat, effectually hinders such a chemical

than usual, by tying a string tightly round the neck. It has of late been ascertained, that game of all kinds may be preserved for many weeks, by being packed in hop leaves. From three to six inches of charcoal, wrapped in a piece of muslin, and boiled with tainted meat, removes the putrid taste or smell; at least if the taint be limited to the surface *.

We are much indebted to various individuals, such as M. Appert, Messrs Donkin and Gamble of London, and the late Mr Eneas Morison of Glasgow, for their very interesting and important discoveries, as to the means of rendering meat in a fresh state, fit for the longest voyages. The principle on which all those gentlemen have proceeded, is that of excluding the external air; and the manufacture has now reached a very high degree of perfection; in so much that salmon, preserved according to Morison's system, after a voyage to India, cannot be distinguished from fish recently caught. It is found, that every description of food may be thus preserved. The method in which it is done is this: The food to be preserved, if animal, being deprived of its bones, is boiled in the jar or pot in which it is to be conveyed, and hermetically sealed, while yet the jar is filled with the food and steam only; and so long as the jar is impervious to the air, its contents continue perfectly fresh.

There has been communicated to us, a very ingenious and simple method of preserving cheese, which is resorted to by the Parsee merchants at Bombay. The cheese, by being dipped into melted wax, is covered with a coating of that substance, which effectually excludes the external air, and keeps the cheese fresh and moist.

SECT. IV.—*Cookery.*

IT is probable that man originally ate both vegetable and animal food in a raw state; and to this day some of the African nations, the Esquimaux Indians, the Patagonians and Samoeides, devour raw flesh and fish, and drink the blood of the

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change. Nor did the nitrate of silver, (lunar caustic), in solution with water, answer better. In less than two months, the meat put into the solution was in a state of putrefaction.

* A haunch of venison, highly tainted, has been restored, so as to be fit for use, by being repeatedly rubbed with charcoal. Tainted fish, may be much improved, by mixing a considerable quantity of vinegar and salt in the water in which they are boiled.

animals. Such a mode of living produces, it is said, great bodily vigour, ferocity of mind, and love of liberty *.

Even among the most savage nations however, animal food generally undergoes some preparation before it is consumed. The culinary expedients which have been resorted to by some tribes, are hardly to be credited, such as putting heated stones into the bellies of pigs to roast them, or burning the straw in order to parch the grain.

Although cookery seems indispensable to mankind, and although, by it, many articles are rendered wholesome, which could not otherwise be eaten, still some substances become pernicious by over-dressing, which would otherwise have produced nourishing food.

Cookery may be considered under two general heads, the simple, and the compound or refined.

The first, though apparently easy, requires both attention and experience; and the second, is an art of so diversified and extensive a nature, that it is rarely carried to perfection; and it would have been no loss to the world if it had never been invented †.

By cookery, the properties of victuals are chemically modified, and their textures mechanically changed. The extent and nature of these changes essentially depend on the culinary operations to which the substances are exposed. It will be found also, that the cookery of a nation, is most materially influenced by the description of fuel in general use; and it has been well observed, that this fact explains better the prevalence of the peculiar species of cookery for which France is famous, than any superior national refinement.

Simple cookery includes the following modes of dressing meat: 1. Roasting; 2. Boiling; 3. Stewing; 4. Broiling; 5. Frying; and, 6. Baking.

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* Adair's Medical Cautions, p. 272. The famous philosopher Zeno, the first of the Stoic sect, and some of his disciples, lived on raw meat. Diogenes however, it is said, fell a victim to that practice. As to the fancied effects on the mind by such a diet, it is highly probable, that the habits and feelings of such savages as are found to be unacquainted with cookery in its simplest form, and thus excluded from the definition which makes "man a cooking animal," are influenced by many other circumstances besides their diet.

† Adair, in his Medical Cautions, p. 172, (note), says, that Dr Saunders proposed, to publish an essay on the present modes of cookery, pointing out the impropriety of certain mixtures and ingredients in our modern dishes. As Dr Saunders was so well qualified for the task, it is unfortunate that his intentions were never carried into effect. It shews the propriety of an author endeavouring, to complete a work, as soon as possible after he has planned it.

1. Roasting was probably the first invented mode of cooking animal food; for boiling is a more complicated process, requiring the art of manufacturing vessels capable of withstanding heat. Hence travellers have found, that some savage tribes are unacquainted with the means of making water boil.

Roasted meat, as beef, mutton, and venison, is preferred in England, and boiled or baked meat in France. The meat of England has not always the same high flavour as that of France; but it is larger, richer, and fatter, and appears to most advantage when roasted. Besides, coal fires are better adapted for that process of cookery, than wood or peat; meat roasted by a peat or turf fire, being more soddened, than when coal is employed for the purpose.

2. Boiling is also an excellent mode of preparing animal food, rendering it soluble, and peculiarly well calculated for weak stomachs, without destroying its nutritious qualities. Boiling however, deprives the meat of some of its nutritive properties, by the removal of a portion of its soluble elements. At the same time, the albumen is hardened, and the juices reduced to a gelatinous substance. It is from this circumstance, that much boiling hardens old meat, and appears almost to dissolve the flesh of young animals. Young and viscid meat therefore, as veal, chickens, partridges, &c. are more wholesome when thoroughly roasted, than when boiled; but beef and mutton are more easily digested when boiled, than when roasted. There is a circumstance which renders mutton more wholesome when boiled than beef, namely, that its soluble nutritive properties are less liable to be withdrawn, in consequence of the protection afforded by the skin; whereas beef, being cut from larger pieces, has a greater proportional extent of cut surface exposed to the action of the water. Mutton generally loses one-fifth by boiling, and beef one-fourth, of their original weight.

It is also necessary to observe, that the boiling temperature is too great for some of the culinary processes of this nature, and it is for this reason, that books on cookery direct certain dishes to be boiled slowly. It would be better if they said, to *be kept from boiling*. *Infusion* indeed, is sometimes all that meat should be exposed to; hence beef and mutton *tea*, are ordered for invalids.

Boiling is peculiarly appropriate for vegetables; rendering them more soluble in the stomach, and depriving them of a considerable quantity of air, so injurious to dyspeptic persons. Some vegetables however, may be injured by too much boiling, as the potatoe; while others, as already mentioned, can scarcely be boiled too much.

We have already referred to the importance of attending to the quality of the water employed in boiling food; it is a curious circumstance, that mutton boiled in hard water is more tender and juicy, than when soft water is used, while it is well known, that the reverse holds with regard to vegetables.

The usual mode of preparing *fish* for the table, is by boiling; roasting renders them more indigestible.

3. Stewing is reckoned the mode of cooking, by which meat is left in the most nourishing condition. By this plan, the texture of the meat is rendered more tender, its soluble parts are not fully extracted, and it is abundantly sapid and nourishing, while the gravy contains a sufficient proportion of the animal extract. It is not however, found a digestible dish by those having weak stomachs.

4. Broiling consists in exposing meat to the near application of a naked fire, by which means, its outer surface immediately hardens before the heat has penetrated the whole; so that any excess of exhalation is prevented. It is peculiarly well suited for beef-steaks and mutton-chops, which are, comparatively speaking, eaten in a juicy, and often almost in a raw state, and which are easily digested. The whole secret of cooking beef-steaks, as exemplified at Dolly's, consists, in turning them only once upon a clear fire, without the addition of butter, or any condiment whatever.

5. Frying is perhaps the most objectionable of all the culinary operations. The heat is applied through the medium of boiling oil or fat, which is rendered empyreumatic, and therefore extremely liable to disagree with the stomach.

6. Baking consists in the application of heat in a dry form; the meat being put into a dish and covered with paste, instead of being exposed to the open air. Any considerable exhalation is thus prevented, and the meat, by the retention of all its juices, is rendered more sapid. But baked meat sits heavy on some stomachs, from the greater retention of its oils, and from their being in an empyreumatic state. Such dishes accordingly, require the addition of various condiments to stimulate the digestive powers of the stomach. The pastry is also an objection to baked meat. A good method of removing this last objection, is to have a cover, which can be luted on to the pie-dish, so as to take the place of the usual paste covering. In this way baking is a pleasant way of stewing meat.

Besides these modes of preparing animal food, there is another, which it may be proper here to take notice of, namely, the solution of animal food in water, and the formation of *jelly*. This substance is of a viscid nature, and though it contains much nourishment, yet it is difficult of digestion, and, of course, less calculated for diseased or weak stomachs than is commonly imagined. Nor are those jellies, which are the mucilaginous extract of certain parts of animals, as hartshorn, very digestible; indeed, a too liberal use of them has often proved injurious *. When used by the sick, they ought to be accompanied with a quantity of stale bread. To those who require mild nourishment, simple beef-tea is much to be preferred †.

One would imagine, that the various modes of preparing food above enumerated, might satisfy the most luxurious appetite; but instead of this, a system of refined, or compound cookery, has been invented, more acceptable to the palate, than favourable to the health.

This is not the place to introduce a description of those exotic modes of cookery, which we think so unlikely to promote the object which this work professes to have in view. On the contrary, we would rather warn our readers against yielding to the temptations of what, under the name of *refinements* in the culinary department, are in reality little more that importations from our continental neighbours, of the various pernicious expedients resorted to by them, to supply, or to conceal the want of that fuel which affords almost to all classes of the inhabitants of Great Britain, a much more wholesome means of dressing their food.

Before this portion of our subject is concluded, we propose to consider the mode of preparing for table, two important articles, namely, bread, and the potatoe.

Bread ‡ is not only made of various sorts of grain, but also of chestnuts, and other nuts; of roots, as the potatoe, &c.; of fish, dried and ground into meal; of flesh prepared in the same manner; and even of the bark of trees, &c. *. But grain is the substance of which bread ought to be made; and wheaten-bread is by far the best.

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* Adair's Medical Cautions, p. 197.

† Falk's Guardian of Health, vol. i. p. 177.

‡ The best work on the art of bread-making, is a treatise drawn up by Mr A. Edlin, printed in London, one volume octavo, anno 1805. It begins by explaining the natural history and cultivation of wheat; the nature of the corn trade; the analysis of wheat flour; the analysis of yeast; the theory of the fermentation of bread; substitutes for wheaten-bread, &c. On the subject of substitutes, he does justice to the experiments made by the Board of Agriculture. Posterity, he says, will speak of them, in terms of the highest approbation, for having turned their attention to the great question of substitutes for wheat in the manufacture of bread; and for the great variety of experiments they made, in order to ascertain the respective qualities of barley, rye, oats, buckwheat, maize, rice, beans, and potatoes.—*Edlin's Treatise on the Art of Bread-Making*, p. 97 and 98.

Bread may be manufactured in three ways; leavened, unleavened, and soured. Leavened bread is subjected to the process of fermentation, either by the addition of some old paste, or leaven, to the new paste, or, by the addition of barm or yeast. The first plan is generally adopted in foreign countries, and the second in Great Britain.

Unleavened bread, consists of a mixture of flour and water, formed into a cake, made thin, to favour its drying; having sometimes the addition of butter, which, while it makes it more friable and porous, is apt to render it sour, and liable to produce acidity of the stomach. Of the unleavened sorts of bread, biscuit is by far the best; and, in all cases, where leavened or fermented bread does not agree, the use of biscuits without butter, cannot be too strongly advocated. There are many cases on record, in which the distressing effects of acidity of the stomach were removed, simply by the use of biscuit, or unfermented bread.

In some of the interior counties in England, where bread is manufactured from oat-meal, it is customary to prepare the meal for baking, by rendering it sour; and the bread, instead of being hard, is thus rendered of a soft texture, and, from its moderate acidity, it is wholesome †. By the same mode, barley-bread has been made; and, with a small proportion of yeast, has formed a species of food that might please the most delicate stomachs. It is of consequence that such substitutes for wheaten bread should be generally known, as every thing which tends to relieve us from dependence on foreign countries, for so essential an article of food, is a point of the highest political importance. If indeed a substitute for wheaten bread, of a wholesome and nourishing nature, can be manufactured

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* See Lemery on Foods, translated by Hay, p. 95.—This must be done, not for the sake of nourishment, but for supplying a dry food, and distending the stomach.

† It resembles what is called *sowens*, or oat-meal flummery. This article is prepared, by letting oat-meal and water stand together, till the liquor becomes acidulous, when it is poured off, and boiled to a jelly. Pringle and Blane relate, that, in several instances, the scurvy has been prevented and even cured by this preparation alone.

from oats, barley, and white pease *, of our own produce, the failure of the wheat crop would be a less serious injury, and we should thus escape the bad effects often produced from the mixture, of foreign wheat, of an unwholesome description, with our own.

3. Fine bread is composed of the flour completely separated from the bran; and as the chief ingredient of such bread is starch, it is apt, from its astringency, to constipate the bowels. The second description of bread is that in which there is a portion of sifted bran; and as the bran in this case counteracts the astringency of the flour, this bread is wholesome to most stomachs. The third description of bread is made of the whole substance of the grain, coarse bran and white flour; and there are many individuals who cannot, without suffering, eat any other kind of bread. It is said by some, that bread made of different kinds of grain, is more wholesome than that which is made of one sort only; their qualities serving to correct one another. For example, wheat flour, especially the finer kind, being of a starchy nature, is apt to occasion constipation. Bread made of rye-meal, on the other hand, proves often too laxative for the bowels. A due proportion of each therefore, makes wholesome bread.

The change which takes place in the oven on fermented flour, is not exactly ascertained. The mean heat to which bread is exposed during baking, is about 450° F.; and in the course of the process, the loaf is said to lose about one-fifth of its weight. The vapour which escapes during the baking of bread, was, until lately, believed to be water. It is now however, ascertained to be a spirituous steam; and it has been found to answer so well, that a patent has been taken out for the invention of an apparatus, by which a spirituous liquor may be collected from the steam of ovens. Newly baked bread has a peculiar odour and taste, which are lost by keeping. The nature of this change is not understood. Bread differs so completely from the flour of which it is made, that none of the ingredients of the latter can be discovered in it. The French, with whom bread is a most important article, add a variety of articles to it, as eggs, milk, butter, &c. They are also in the habit of mixing ammonia with the dough, which raises it, and renders it more spongy; and as the ammonia escapes by

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* The mixture of white pease-meal is an improvement on bad flour; and when barley or big is made into pot or pearl barley, it yields a very fine species of flour, which, *when kneaded with milk*, can hardly be distinguished from wheaten flour.

evaporation in the oven, it does not affect the taste of the bread.

4. It will not be expected that we should here enumerate the various good qualities which have been ascribed to bread. Although some stomachs do not agree with fermented bread, it is very certain, that the leaven and baking, in changing the nature of flour, produces an article which is more soluble not only in the stomach, but even in water. In addition to the nutritive qualities of bread, it serves to divide the food, to carry a quantity of saliva to the stomach, and by absorbing some of the fluids which are partaken of at meals, it retains them in the stomach until they are digested. It also adds a suitable bulk and consistence to the food. Nothing is more refreshing to those labouring under extreme thirst, as from fever, than an occasional mouthful of stale bread soaked in iced water. Many people who have partaken of luscious food, instinctively consume more than their ordinary quantity of bread; and such a practice will generally be found the best means of escaping the derangements in the stomach, so liable to arise from imprudence at *great dinners*. The addition of salt renders bread more digestible *.

Having thus stated a few of the advantages of bread, it is proper that we should likewise advert to some of the evils which it is apt to produce. In certain states of the stomach, fermented bread invariably produces acidity; and observant practitioners have found, that the complaints of children are often wholly attributable, to the injurious effects of bread on their stomach, or intestines. By some it is supposed to breed worms; and by Shebbeare, it is fancifully suggested as the cause of the rickets, so common to children in France.

Many other ill effects have been attributed to bread, and it is by no means uncommon for individuals, to ascribe the severe dyspeptic affections to this most important article of food. The truth unfortunately is, that many fraudulent proceedings take place in the manufacture of bread, which are the less easily discovered, from the circumstance of fermentation and baking, completely altering the constitution of most articles. It would therefore be of great importance were some means discovered, so that, by examining the dough on its first manufacture, or the vapour from the oven, the frauds of bakers or flour-dealers might be exposed; and the severest penalties ought to be inflicted on those, who, in this important article, tamper with the public health. The constipating effects of London bread are generally ascribed to the addition of alum.

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* See Accum's Treatise on the Making and Adulteration of Bread, for the farther discussion of this subject.

5. The following rules may be considered worthy of attention with regard to the use of bread: 1. Bread should be kept until it is rather stale; or if consumed when newly baked, it ought to be toasted. 2. The external surface, or crust of bread, is most easily digested; but it contains less nourishment than the softer part, or crumb. 3. Fermented bread should not be given to children, for the first six, eight or ten months, according to their strength: biscuit powder, in small quantities, is an excellent substitute. 4. The proper quantity of bread for full-grown persons, must be regulated by the age, sex, constitution and mode of life; but, in general, a third of bread may be considered the best proportion of this article to the other ingredients of our solid food.

It has been made a question whether bread should be used as an article of food. In the present day, the discussion of this question would be ridiculous, as the use of leavened bread has become an indispensable article of consumption in every civilized nation; and we may safely believe, that when unadulterated and properly baked, wheaten bread is, beyond measure, the most important part of diet. Of course, when it does not agree with individuals, biscuits, boiled grain, &c. may be substituted.

Potatoes.—Next to bread, there is no vegetable production, the preparing of which for consumption, ought to be more attended to than the potatoe. If properly dressed, it furnishes not only a wholesome, but a most acceptable article of diet; but its digestibility, in a great degree, depends on the kind of potatoe, as well as on the mode of cooking it. That species which is known by the name of the waxy potatoe, is digested by but few stomachs, and therefore passes on to the intestines in an unaltered state. The meally potatoe, on the other hand, yields readily to the powers of the stomach, and affords a healthy nutriment. It answers nearly the same purposes as bread, and should therefore be freely partaken of with concentrated food.

Before boiling, potatoes should be most carefully washed; they ought then to be put into a sauce-pan with cold water, covered, and made to boil quickly. As soon as the water boils, it should be poured off, and sufficient cold water to cover them, poured upon them, with a little salt. When this fresh water boils, it should be immediately poured off, when the potatoes will be found sufficiently done *, and the pot in which they have been boiled, should be placed for some time by the side of the fire, that any superfluous fluid may evaporate. New potatoes require less boiling than old, and potatoes boiled at the same time, and in the same vessel, should be as nearly of one size as possible. To mash potatoes does not contribute to their digestibility, probably by their not receiving the admixture of saliva, from chewing being unnecessary. Potatoes may be converted into bread, and consequently become a very important article during any scarcity of grain †.

SECT. V.—*Of Seasoning or Condiments.*

As we find that even the inferior animals require, in addition to the food which may be considered their proper nourishment, a proportion of bitter or stimulating articles; for instance, that cattle do not thrive, when there are no grasses containing a portion of the bitter principle in their pasture ground; we may conclude, that condiments are favourable to the digestive process. Pliny condemns them as highly pernicious; but he probably alluded to the feasts of Apicius, and other luxurious Romans of those times, who carried seasoning to excess.

The uses of condiments are numerous. They sometimes ameliorate the taste of food; at other times they correct its noxious qualities. Sometimes they promote the digestion of the aliment, and at other times accelerate its passage through the body.

Condiments may be considered under the following general heads: 1. The saline; 2. The sweet; 3. The acid; 4. The hot or spicy; 5. The oleaginous; 6. The compound; and, 7. The miscellaneous.

1. Salt is more generally indispensable than any other article, mineral, vegetable, or animal, which is applied to the uses of man. But it is not to the human species, nor indeed

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* Boiling once, *if protracted*, may be sufficient; but boiling twice is better, and greatly preferable to steaming.

† M. Parmentier observes, that potatoes contain too much mucilage in proportion to their starch, which prevents them from being converted into good bread. But that if the starch be collected from ten pounds of raw potatoes, by grating them into cold water, and agitating them, and if the starch thus procured be mixed with other ten pounds of boiled potatoes, and properly subjected to fermentation, like wheat flour, it will make as good bread as the finest wheat.—*Darwin's Zoonomiæ*, vol. i. p. 655. Arrow-root, to the amount of about one ounce to four pounds of potatoes, and as much flour, answers much better.

to animals only that salt is valuable; that it is often necessary to the lower animals, is strikingly exemplified, in the avidity with which, in a wild state, they seek the salt-pans of Africa and America; and it is well known, how much manure is improved by the addition of salt. The importance of salt, cannot be better illustrated, than by what is stated by Lord Somerville in his address to the Board of Agriculture, on the effects of a punishment formerly inflicted in Holland. “ The “ ancient law of the country, ordained men to be kept on bread “ alone, *unmixed with salt*, as the severest punishment that “ could be inflicted upon them in their moist climate. The ef“ fect was horrible. These wretched criminals, are said to have “ been devoured by worms engendered in their stomachs.” Cases are also reported by writers on dyspeptic affections, in which stomach-complaints were evidently produced by abstaining from the use of salt, and where cures were effected, simply by a moderate consumption of this condiment. One effect of the disuse of salt, that of producing intestinal worms, seems to be proved, by a case detailed in the 29th vol. of the London Medical and Physical Journal; and also, by the popular remedy among the lower classes of Ireland, for the cure of worms, viz. a draught of salt water *.

It is unnecessary that we should speculate on the various uses of salt to the human body; experience has amply proved how necessary it is; and that the disuse of it produces the most serious injury to the system. It is an important ingredient in the blood †. As physiologists however, have not decided in what way it produces its good effects, we may content ourselves with stating, that it probably acts as a stimulant to the alimentary canal, and assists the digestive juices, in preventing the natural changes of fermentation and putrefaction, from taking place, on the various ingredients introduced into the stomach.

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* An eminent lawyer, by the advice of Dr Woodward, abstained for some years entirely from salt, drank chiefly water, and used freely an animal diet. The consequence was that he acquired a violent scurvy. He was in some time relieved by a strict regimen of diet and medicine, and afterwards used salt and vegetables, with animal food, drank wine more freely, and never had any return of that complaint. See Barry on Digestion, p. 108.—A person who drank nothing but water, and lived freely on animal food, was obliged to take ten times as much salt as any other person, to guard his humours from putrefaction.—Ibid. p. 109.

† It seems to be ascertained, that the rapid failure of the powers of life in the pestilential cholera, is in a principal degree to be attributed to the disease producing a discharge, along with the important fluids of the blood, of a portion of its saline ingredients. And the remedy which produces the most immediate and wonderful effects on this disease, is a mechanical restoration of the loss, by injecting into the blood-vessels a solution of salt in water.

We may observe, that salt, important as it is every where, seems to be more vitally so in the hotter climates, where even the youngest infant instinctively devours salt, and where it is much more difficult to prevent children from stealing salt, than sugar. The common expression in the East, is not that a person has been fed at another's expense, but, "*that he has eaten his salt* *."

Salt, although it need not be exceeded in, should be used by every one. It will be found particularly necessary as a condiment to extremely fat meat.

2. Sugar exists abundantly in the vegetable kingdom, and is found in considerable quantities in many fruits when ripe. It is obtained however, with greatest ease, from the sugar cane *(Arundo saccharifera)*, from which most of the sugar at present used in the world is now extracted. During the late war, sugar was obtained in France from the beet root; and there are still some manufactories of sugar from that plant, in various parts of the Continent.

Sugar is nutritious, antiseptic, and laxative; but being of a very fermentable nature, it sometimes produces flatulence, heat, and thirst. That it is not unwholesome however, seems well established. Indeed, it may be considered as a most useful article of consumption. Slare, in its defence, quotes the celebrated example of Mallory, who was a great lover and eater of sugar, and who, after cutting a fresh set of teeth at past fourscore, lived to about one hundred years of age †.

3. Vinegar, when taken moderately, is with most people a grateful and wholesome stimulant. It is capable of checking a disposition to chemical fermentation in the stomach, and counteracts the tendency of raw vegetables to produce flatulency. But its use requires caution, particularly with delicate stomachs. It appears also, to have the power of rendering fatty substances more digestible; it may be generally considered a safer condiment, than any of the natural acids, as lemon, &c. having already gone through the vinous fermentation ‡.

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* The use of salt is strongly objected to by Dr Cleland, in his Institutes of Health, (Appendix, p. 34), and he states, that the celebrated Boerhaave, after due examination, thought it of no manner of service to the animal economy, and therefore, recommended that no more of it should be used than may be just required to give a relish. But whoever considers the observations contained in the text, will probably be of a different opinion.

† See Cleland's Institutes of Health, App. p. 38.

‡ It is well known, that the soldiers of Rome and Carthage used vinegar and water as their common drink; and every soldier was obliged to carry with him

Vinegar or lemon is by many regarded a necessary addition to fish; and it is thought, that shell-fish in particular, ought never to be eaten without some acid, as a means of rendering them more digestible and wholesome. For the same reason acids are used with veal, lamb, and the flesh of other young animals, namely, to correct their glutinous quality.

The French use vinegar more liberally than we do; and it is a very proper sauce for their meats, which they generally eat almost in a putrescent state. Their vinegar is generally more genuine than ours, which is frequently adulterated with oil of vitriol *.

4. The hot or aromatic condiments comprehend, not only the indigenous herbs or roots, such as parsley, sage, thyme, garlic, leek, onion, horse-radish, mustard, and caraways, but the foreign spices, as Black and White peppers, Cayenne pepper, ginger, nutmeg, mace, cinnamon and cloves. It has been regarded as an objection to the foreign stronger spices, that they are not produced in our climate; but although it is a reason for the consumption of an article, that it is the natural production of a climate, it is no longer a reason against the use of substances, that they are not indigenous in the countries in which they are resorted to as food. Man, in these northern nations, cannot now be considered as in a natural state. A native of Great Britain, clothed in all the comforts which manufacturing improvements have brought within the reach even of the poorer classes of our inhabitants, and the medium temperature of whose house, throughout the year, is at least 60° F. is no more to be compared to a half-clothed savage, living in a wretched hut, the temperature of which is seldom above that of the external air, than parched grain and half-roasted animal flesh, are to be compared to the bread and highly seasoned dinners of the present day. Any arguments against the use of condiments therefore, founded on the nature of our climate, must be received with reference, not to our geographical position, but to the state of civilization and habits of our country. At the same time, it must be kept in view, that although the condi-

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a certain quantity of vinegar, to correct the qualities of any unwholesome water he met with in his marches. This beverage was regarded of singular service, in preventing fevers, plagues, and putrefactions, and in giving a stimulus to the water they drank, by which it was prevented from lodging in the body.—See Cheyne on Health, p. 58. Also Jackson on Fevers, p. 407.—Too free a use of vinegar however, is certainly destructive to the stomach; and, by the abuse of that article, when slenderness of waist was particularly in request, many women totally ruined their digestive organs. *Beddoes' Hygeia*, vol. ii. Essay viii. p. 50.

[*] Adair's Medical Cautions, p. 229.

ments of hot climates are, in moderation, far from being unwholesome, still they cannot be safely partaken of in this country to the same extent, in which they may be used in their native climates.

Spices seem to be a natural and wholesome method of stimulating the energies of the stomach; and accordingly we find, that the weak and delicate are, by the assistance of hot condiments, not only induced to partake of a meal, but enabled to digest it completely. In hot climates, this effect of condiments is very remarkable. Thus, an individual, who has joined the dinner table with a feeling of loathing at food, is tempted, by the stimulus of *mulligatany*, (literally, pepper water), to eat a hearty meal; and those whose stomachs are less delicate, find that after eating a plentiful dinner, they have still an appetite for a large plate of curry and rice. No doubt, it may be injurious, as a general rule, to stimulate our appetites, to partake of food which the unexcited stomach loathes; still it is very certain, that in circumstances in which it is indispensable that food should be eaten, it is of infinite importance that the means should be at hand, not only capable of exciting the appetite, but of assisting the digestive organs.

It is scarcely necessary that we should enlarge on the various tropical condiments. Pepper may be considered the chief one; and it is a sufficient proof of its merits, that it has become indispensable in every civilized nation *. Cayenne pepper is also very useful at table, and in dressing many dishes and sauces. It is, at the same time, a very valuable article as the basis of a stimulating gargle, in cases of incipient sore throat, or of chronic relaxation in the soft palate and fauces. Ginger is an agreeable and wholesome aromatic, preferable to most other spices, as possessing little acrimony. Cinnamon is a delicate and wholesome spice, and is not only useful in cookery, but of considerable value in medicine †. The clove is hot and stimulating, having a smell peculiarly grateful. The nutmeg is a pungent aromatic, of an agreeable flavour; but it is the least wholesome of all the spices, the essential oil which it contains being narcotic. Mace, which is the skin that immediately invests the nutmeg kernel, possesses the same general properties. Cardamoms, cubebs, and other spices, are but little in use as condiments, although employed in pharmaceutical preparations.

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* The mode on the Continent, of keeping pepper in open cellars, instead of covered boxes, as practised in England, is extremely absurd, as its strength and flavour are thereby lost.

† Powdered cinnamon however, ought to be cautiously taken by people of weakly habits, as it is apt to occasion costiveness.

Foreign condiments are of course better calculated, in this country, for summer than for winter; and they are very necessary, during the season when green vegetables are liable to be taken in excess. At the same time, it may be remarked, that spicy stimulants are not to be regarded as articles of diet which may be partaken of to an unlimited extent. They may, if exceeded in, deprave the organs of digestion, and ultimately render them incapable of the performance of their functions. Hence the inordinate use of vegetable spices may produce, although in a minor degree, effects similar to the improper use of spirituous stimulants.

The indigenous stimulating condiments of this country, may of course, be all resorted to for culinary or dinner table purposes; and they may even be regarded as, in many cases, necessary aids to the digestive process.

The use of *mustard* is extremely ancient. Hippocrates mentions it in his treatise on diet, and Aretæus recommends it to be taken liberally with food, in cases where other stimulants are forbidden. He is very lavish in his praises of its good effects in expelling flatulence, and promoting digestion. In France, where they pay particular attention to every thing connected with the table, mustard is celebrated as the best of stimulants *.

The *seeds* of the *caraway* are the mildest and most useful of the simple carminatives †. To people of a weak digestion, troubled with flatulency and colics, they will often afford relief. Yet persons of a hot and bilious temperament, and persons liable to obstructions, and habitual costiveness, ought not to use these seeds without professional advice. Caraway seeds, finely pounded, with a small proportion of ginger and salt, spread upon bread and butter, and eaten every day, especially early in the morning, and at night before going to bed, are used in Germany as a domestic remedy for hysterics. Caraways must not be kept in a pounded state, as they soon turn rancid.

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* Almanac des Gourmands, 2de année, p. 93. Mustard is also of essential importance as a domestic medicine which is to be found in every house. It affords a most effectual means of stimulating the skin; a mixture of made mustard with crumbs of bread, acting immediately as a blister. And a table spoonful of powdered mustard, in a tumblerful of water, acts quickly as an emetic; a fact which every one should keep in mind against accidents of poisoning. The medical uses of mustard, will be fully considered in the Appendix, (See Mustard Seed.)

† Carminative is a term applied to those substances which allay pain, and dispel flatulencies of the stomach.

The plants of the *garlic* kind, so often used as condiments, have already been taken notice of amongst the articles of vegetable diet. In regard to the spicy herbs produced in this country, as *thyme* and *sage*, they are principally used as condiments in soups and broth. In small quantities, they give energy to the digestive organs, especially in phlegmatic and corpulent habits. They are also less liable to adulteration than foreign spices; but, if taken too freely, they are apt to excite thirst and feverish heat.

5. Salad oil is the chief of the oleaginous condiments; and in the countries where it is produced in perfection, its consumption is very great; answering the purposes of butter. It is of a mild and bland nature, with little odour or taste. When used in salads, or as a seasoning for raw vegetables, it seems to render them more digestible, and to prevent their producing flatulence; but, when taken in large quantities, oil cloys the stomach, and may become the source of dyspeptic affections.

Melted butter is another oleaginous condiment. It makes a proper, and not an unwholesome addition to boiled vegetables, and to various sorts of fish; but it disagrees with weak stomachs, more especially when the quality of the butter is indifferent, or when it is improperly melted.

It would appear, from Dr Stark's experiments, that excess in the use of oleaginous substances, is more hurtful to the body, than an excess in any other article of food, and that we ought to be particularly careful, in regulating the quantity, and attending to the quality of the oils we employ in diet *.

6. Of the various combinations of condiments, with other articles, commonly called *Sauces*, the two most worthy of notice, are *catsup* and *soy*. The first is prepared from the juice of mushrooms, submitted to the putrefactive fermentation, having in that state, salt, vinegar, and aromatics, added to it. Soy is a preparation from seeds produced in the East Indies and China, submitted to fermentation in a strong solution of common salt. It possesses therefore, a saline taste, with little aromatic flavour. Both these articles are better calculated to please the palate, than to promote health.

Perhaps the most important combination of condiments, is that which has obtained the name of *Curry powder* †, which, when well prepared, affords a condiment, capable of proving highly serviceable, not only to individuals debilitated by a residence in hot climates, but to those suffering from weakened digestive organs in any climate. It is however, justly remarked, that seasonings and sauces ought not to be much indulged in by the young, and by those of full health and strength; who require no spur to the appetite, or help to digestion.

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* The Works of William Stark, M. D. p. 143. Oily substances however, are of great use to the body. See this subject explained in Falconer's Observations on some Articles of Diet and Regimen, p. 25, 26, &c.

† Vide Appendix, Curry powder.

7. Of the miscellaneous condiments we may notice two,—olives and cheese.

Olives are, in this country, considered as a condiment, or rather as giving zest to wine; but they are resorted to as food, where they are indigenous. Olives are best in their pickled state, as they then lose much of their bitterness and acrimony. From their oily nature, they are improper for delicate stomachs.

We have already considered *cheese* as an article of diet. When cheese is resorted to as a condiment, as is so common, after a full meal, there is much reason to believe, that it is only useful from its *indigestibility*, and that by calling forth the full powers of the stomach, it forwards the digestion of more soluble articles.

Under this head, we may perhaps not improperly consider *iced* food; for it seems probable, that ice may occasionally act as a useful stimulant to the stomach. It must be observed however, that though, in some countries, and for some constitutions, the prudent and moderate use of ice may be proper, yet in general, it produces more injurious than beneficial effects *.

On the whole, the subject of condiments is both curious and important. When taken in small quantities, merely to give zest, or sapidity to food, they certainly have a tendency to increase the appetite, and to promote digestion; but where they are taken immoderately, they tend to injure the stomach, to occasion acrimony in the fluids, and to produce general irritation in the system.

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* An intelligent author mentions the case of a nobleman, whom he describes as being in every respect a manly character. He was a great advocate for the cold bath, and, in general, for every thing that could harden the body; and imagined that cold, *applied internally*, must be as salutary as when applied externally. He often drank his liquors iced, and eat plentifully of ice-creams of various kinds. After having one day partaken in greater quantity of these than usual, a fatal inflammation at once affected the stomach, the intestines, and the kidneys; which resisted the prescriptions of three eminent physicians, who did not leave him an instant; so that he fell a victim to this his favourite opinion. Valangin on Diet, p. 115.

SECT. VI.—*The times of eating, and the sort of Food best adapted for each Meal.*

NOTHING proves more clearly, that man is the child of custom, than the various systems which have been adopted, regarding the times of eating, and the number of meals *per* day. Some have thought a regular plan unnecessary, but that man should eat when hungry, and drink when thirsty. Such a system, were it even advisable, could only be adopted, where individuals live alone, have nothing to think of but themselves, and have a diet prepared for the purpose. Persons so circumstanced, might indulge their appetites in that way *. In all numerous families however, periodical meals are indispensable. Indeed the stages which take place in the operations of digestion show evidently, that it is necessary that certain intervals should elapse between each meal.

But although regular meals are admitted to be desirable, there are many opinions held as to the number which should be taken in one day; some considering one sufficient, and others recommending four. Age, sex, constitution, habit, and climate, will of course influence the rules to be adopted on this subject.

It is not uncommon among the Hindoos, to take only one meal in the twenty-four hours; but it must be recollected that the inhabitants of India have not only a peculiar climate to deal with, but that the Hindoos of high cast, take little bodily exercise; that they are in the habit of loading their stomach to an almost incredible extent at their meals; and that their diet being farinaceous, is long of being digested. But under other circumstances, one meal only in the twenty-four hours, is very far from being commendable.

Celsus recommends it to the healthy, to take food rather twice than once in the day †; and it is very certain, that animal food, should not be partaken of more frequently.

The Romans, in the most luxurious periods of their empire, took five meals a-day. The supper however, was the great meal, which consisted of two courses; the first of meats; the second seems to have been a kind of dessert.

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* Dr Franklin knew a gentleman who had been a slave in Barbary, and was allowed only a certain quantity of barley, which he took with him every morning to the quarries where he was employed. He there found water to drink. His practice was, to eat a little now and then, whilst at work; and, having remained many years in slavery, he had acquired so far the habit of eating frequently, and little at a time, that when he returned home, his only food was gingerbread nuts, which he carried in his pocket, and of which he eat from time to time.—*The Works of William Stark, M. D.* p. 92.

† See Grieve's Celsus, cap. i. p. 23.

The English, of old, had four, and sometimes five meals a-day *. They breakfasted early; they dined about eleven or twelve o'clock, and had at least two meals after. One of the Maids of Honour, at the court of Henry VIII. had five meals a-day, three of them with meat †.

The subject of meals, may be considered under the following heads: 1. Breakfast: 2. Dinner: 3. Supper: 4. Intermediate meals: 5. Rules to be observed at meals: and, 6. Rules to be observed subsequent to them.

1. *Breakfast.*—It is remarkable, that notwithstanding the period which elapses between the meal of the previous day, and the hour of rising in the morning, there is generally little inclination to eat on first getting up from bed. This appears to arise, from the condition of the stomach after a night's rest. This organ having, during the night, digested all the food remaining in it, probably falls into a state of quiescence; so that, until the system is stimulated by exercise, or the stomach itself by food, hunger is not excited. Breakfast however, is a very important meal, not only with reference to the coming occupations of the day, but to the condition of the stomach itself. It is therefore of the greatest consequence that this meal should consist of such articles as are likely to agree with the stomach, and to prove nourishing to the system.

We have not perhaps in any respect departed more from the habits of our ancestors, than with regard to the materials of which our breakfast is composed. A breakfast of beef and ale, such as a Maid of Honour in the Court of Queen Elizabeth would have partaken of, is now not thought of even by the hardiest sportsman or the rudest mechanic; and day labourers may be seen breakfasting on tea and toast.

The time at which breakfast should be taken with most propriety, seems to be about an hour after rising; and the food of which it should be composed ought to depend, in a very great degree, on the labour or service about to be undergone, or on the condition of the digestive organs. If a day's hard work be in view, meat and eggs ought to be used in addition to the usual breakfast; or if the system be weaken-

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[*] Dr Mouset gives the following curious description of the old English style of living. "If our breakfast, (he says), be of liquid and supping meats, our dinner moist, and of boiled meats, and our supper chiefly of roasted meats, a very good order observed therein, *agreeable both to art, and the natures of most men.*"—*Health's Improvement*, printed at London, anno 1655.

[†] See the Bill of Fare, Adair's Medical Cautions, p. 275.

ed, and the digestive organs disordered, it may be necessary to make the principal part of breakfast on beef-steak, or mutton-chop. To those who are engaged in city occupations, and who are exposed to little bodily fatigue, a meat breakfast will in general be found heating and unnecessary. To them tea or coffee and bread, stale or toasted, with good butter, with the addition perhaps of an egg, forms the safest breakfast. In the country, greater liberties may be taken; and if the dinner hour be late, ham or cold meat may be added to the usual breakfast. Many find fresh fish, particularly small haddocks, wholesome and useful at breakfast. Others again prefer salt fish; but the latter require strong digestive organs, and are apt to produce disagreeable thirst during the day. When in season, fruit is not an unpleasant addition to breakfast, and, particularly in a hot climate, is very acceptable.

In some dyspeptic cases, it is necessary to make the breakfast consist entirely of meat and rice, with the addition of tea and a little milk or sugar; it may even be advisable to substitute beef-tea for other fluids.

Some have recommended *a dry breakfast* as peculiarly wholesome; and this plan is sanctioned by the example of the celebrated Marcus Antoninus, who was accustomed to eat a hard biscuit for his breakfast, the moment he got up. This practice is said to be of use in catarrhal defluxions, by absorbing the night-remains of unconcocted phlegm in the stomach *.

In Scotland, it is not unusual to have at breakfast *marmalade*, and other preserves. These however, cannot be partaken of with safety by persons subject to acidity of the stomach.

Milk thickened with rennet, called in the western counties of England *junket*, when the whey and curd have not been separated, is by some regarded an excellent breakfast †. In India, a similar preparation is found exceedingly agreeable. It is called *dhaee* or *tyer*, and is milk forced into a premature curd by heat, and the admixture of a little butter milk. It is said to be exceedingly refreshing during the hot season; and is eaten with rice.

Infusions of balm, sage, or chamomile tea, at breakfast, are objected to, on the ground that a constant use of aromatics or bitters is very injurious to the stomach, and ought to be resorted to only as a medicine ‡.

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* Cleland's Institutes of Health, p. 42.

† Beddoes's Hygëia, vol. ii. Essay viii. p. 67.

‡ Adair's Medical Cautions, p. 333.

2. *Dinner.*—Among the Romans, dinner was regarded, rather as a refreshment, to prevent faintness, than as a meal to supply nourishment. It consisted chiefly of some light repast, without animal food or wine *. But in modern times, it is considered the principal meal, at which every species of luxurious gratification is indulged in; and no wonder that it should be considered in that point of view, if M. Grimod's opinion be well founded, that five hours at table, *is a reasonable latitude for dinner*, when the company is numerous, and the feast abundant †. The hour of dinner is now thrown so late in the day, that it corresponds with the suppers of our ancestors. This fashion however, of delaying the principal meal to so late an hour, by destroying the tone of the stomach, proves the source of many of those stomachic complaints, which affect men of business, and those in the higher ranks of life. The meal is also taken to greater excess, than if it occurred at an earlier hour; the stomach, in consequence, becomes over distended; the process of digestion, which ought, if possible, to be effected sooner, is not completed before the hour of repose; and a restless night, and an unpleasant morning, are the necessary consequences ‡.

As a matter of curiosity, we shall give in the Appendix, Pinkerton's account of a French dinner in his day; not however as worthy of imitation; for most assuredly, no system of feeding, seems less adapted to maintaining a healthy condition of the stomach than that followed in France; and we may add, in the upper ranks of society in this country §.

Some have thought that the English dinner is too much hurried over; and there is no doubt often a painful impatience exhibited by the master or mistress of the feast, to see the second course make its appearance, as if the only object of the meeting, were to fill the stomach, and not to enjoy society. Such exhibitions are ludicrous enough. But the truth is, provided due attention be paid to mastication, and all unnecessary hurry avoided, the shorter the time occupied in eating, the less chance is there of overloading the stomach.

3. *Supper.*—In the time of Queen Elizabeth, the nobility and gentry were accustomed to dine at eleven in the forenoon, to sup between five and six in the afternoon ||, and to retire to rest at ten. It is therefore evident, that if we are to imi-

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* Barry on the Wines of the Ancients, p. 236.

† Almanac des Gourmands, p. 123.

‡ Turnbull's Medical Works, p. 40.

§ Appendix, *French Dinners.*

|| Hume's History of England, vol. iv. 464, note 8.

tate our ancestors as to supper, all that is necessary is, to change the names of meals; and our present fashionable dinners may, with great propriety, be called suppers. The truth is, that unless the dinner were thrown to the former early hour, a supper, even of the lightest description, is not to be thought of. To invalids however, and others who, by medical prescription, or from circumstances, dine at the wholesome hour of two or three o'clock, a slight supper, two hours before going to bed, may be safely partaken of. But it seems now well ascertained, that although a siesta does not put a stop to digestion, the regular night's sleep is invariably interrupted, while the process of digesting a heavy meal is going on *.

If breakfast be the meal of friendship, dinner that of etiquette, and the luncheon that of youth, supper may be called the feast of love and wit; at least the charming suppers for which Paris was formerly so much celebrated, were entitled to that name, when every thing the most amiable in that great metropolis, all the elegance of the court, all the talents of the learned, and all the beauty of the fair, were united in the luxurious sanctuaries of splendid opulence †.

4. Many persons avoid eating between breakfast and dinner, on the supposition that it may spoil their appetite for that favourite meal, even though the interval be sometimes eight hours ‡. This is very injurious, particularly to invalids.

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* Mechanics and labourers however, whose hour of dinner is that of ancient times, find it necessary and safe to eat a hearty supper soon after returning from their day's work. The ancient physicians, Hippocrates, Celsus, and Galen, were all in favour of light dinners and substantial suppers, alleging, that foods are sooner and more perfectly digested, when we are asleep than when awake, and that the interval between supper and dinner is double that between dinner and supper. But it has been properly answered, that when we are asleep, the stomach is less active, and that the animal functions are in a great measure at rest. It is also to be observed, that sleep is the proper time for assimilation, and not for digestion.

† Almanac des Gourmands, p. 65.

‡ Strong objections have been made to the modern system of meals; and the following observations upon that subject, coming from the pen of the Reverend Dr Gregory, merit attention. In a communication to the author of this work, he observes, "There is one circumstance I cannot omit in this case, because, I am convinced, it deserves most serious consideration. The late dinner hours of persons of fashion, I am convinced, are destructive of both health and longevity. Our wiser ancestors divided the day into nearly equal parts, by the principal meal. Several good effects were the consequences of this arrangement. The stomach was not left empty by a long fast, and the gastric fluid was not left to act upon the coats, possibly the nerves of the stomach, and destroy its tone; but what is of more consequence, long sittings after dinner were not indulged in, but all the gross effects of this meal, (if there were any), were wrought off, and digestion promoted, by wholesome exercise. From my own experience, I can aver, that moderate exercise, is a greater promoter of digestion, than rest;

Persons with weak stomachs should never fast, in the day-time, above six hours, more especially if there be a disposition to acidity of stomach. It is an excellent practice for valetudinarians, who dine late, to take a little soup with toasted bread, about one or two o'clock. By taking food frequently, in moderation, the stomach is less oppressed, and performs its office more completely, the fever of digestion is diminished, and too much chyle is not sent into the circulation at once. A slight luncheon also, is likely to prevent repletion from excess, consequent on excessive hunger.

Tea, in addition to being a refined meal, and one of which both the sexes can partake with equal safety, and together, is unquestionably one of great service to the stomach, as the slight stimulus of tea, seems to reach it just in time, to assist its lagging powers in the concluding operations of digestion.

It was formerly a custom in England, after the then early supper, to take what was called *a posset*, consisting of milk, bread and eggs, sugar and spice, and some sort of liquor; but that custom is now happily exploded.

5. *Rules at Meals.*—It is much disputed, whether a meal should commence with liquid or solid food. Custom with us seems to decide the question in favour of commencing dinner with fluids; and although this can scarcely be considered as a natural system *, it certainly does not seem to be attended with any marked bad effects. Dinner therefore, may safely be commenced with soup or broth, which at least has one good effect, that of staying the appetite, so as to prevent excesses, which might arise from commencing, while the stomach is entirely empty, with more substantial viands.

The English mode however, of taking fluids after dinner, —pouring into the stomach, during the progress of digestion, quantities of cold wine,—cannot possibly be approved of.

We have already dwelt on the importance of fully masticating the food, eating leisurely, and avoiding satiety.

6. *Rules after Meals.*—A variety of contradictory rules have been given, regarding the conduct to be pursued, subsequent

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and I think I could assign physical reasons for it. As it is, see what are the consequences,—they are either a long fast, or that another meal is added to the course of the day, and a long sitting, and intemperate use of wine indulged in, during the afternoon and evening. I do not think that it is well to sleep with the body overcharged, as it is in the progress of this regimen. Hence the frequency of those diseases caused by what Brown terms indirect debility, and particularly apoplexy and paralysis."

* The tiger however, pursues the same practice, as he sucks the blood of his prey, before he eats its flesh.

to the different meals. The interval betwixt breakfast and dinner, is the natural period for business or exercise; and as the breakfast is comparatively a light meal, severe exercise after it, does not seem to interfere with its digestion. The digestion of dinner however, appears to require a different management, and, excepting with individuals of very great digestive powers, it is generally necessary to give the system a period of rest after the principal meal. With active people, and those of strong habits, the intermission of an hour may be sufficient; but with the weak and delicate, little exertion ought to take place for a much longer period.

In warm climates, it is not unusual to sleep after eating; a practice, the propriety of which shall be afterwards fully considered. (See Chapter VI. on Sleep). It is so general among the natives in those countries, that it must be found of service *; but with us, it does not seem necessary, and ought not to be given way to, unless after great fatigue, or where persons are either in a weakly state, or in advanced years. Under such circumstances, a short sleep will permit the digestion to proceed uninterruptedly, and the nourishment to give its full supply to every part, before it is again dissipated by the action of the body †.

General Result.—The subject of meals being of considerable importance to health and longevity, it may not be improper to sketch out a plan, more likely than the prevailing one, to promote such important objects; and the following hints for that purpose, are submitted to the reader's consideration.

The hours at which the different meals ought to be taken, must vary according to the season of the year, and the hour of rising. On the whole, the following seems to be a rational mode of living, for those who prefer health to fashion.

In summer, rise about seven; breakfast about nine; take a little fruit, a crust of bread, or a biscuit, if necessary, about one; dine between four and five, so as to take some exercise in the cool of the evening; take tea or coffee, as is found most agreeable to the constitution, between eight and nine; and if any supper be taken, let it consist of strawberries, or any of the smaller fruits. Go to bed between ten and eleven.

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* European strangers within the tropics, very generally find sleeping, after their hot and stimulating luncheons, produce *bilious* derangements.

† Turnbull, in his Medical Works, vol. i. p. 43, observes, that sleeping after dinner, in warm countries, is only to be condemned when it is carried too far; and that it may be necessary, when the body is enfeebled and enervated by the relaxing influence of a burning atmosphere. Where the diet also is of a vegetable kind, it is more difficult to have it completely assimilated.

In winter, rise about eight; breakfast about nine; take a *slight repast* * about two; finish all the business of the day, and take a substantial dinner between five and six; take tea or coffee about nine; no supper. Go to bed about eleven.

In spring, the hours ought gradually to tend to the summer system, and in autumn, to that of winter.

SECT. VII.—*The Quantity of Food to be taken at the different meals; with some Observations on Abstinence, Temperance, and Excess.*

EVERY one is aware, that good health depends on a proper quantity of food, and a just proportion of solids and fluids. In polished nations, men commonly eat at least double the quantity of food necessary, and often four or five times more than they ought to do; and it cannot be doubted, that among the higher orders of society, almost all the chronic diseases, and many of the infirmities of old age, as well as the shortness of life in general, are owing to repletion.

With regard to the quantity of food which is to be considered sufficient for an individual, it must be evident to every one, that each person's diet must depend on circumstances which are applicable to himself alone. It has been well observed, that the only rule as to quantity which it is necessary to lay down is, *that no individual should go on eating until he is completely satiated;* and provided a person eats slowly, and does not excite his appetite by stimulating fluids, this rule will be found equally safe and useful. As however, it has been thought necessary, by writers on dietetics, to enter fully into the subject of the quantity of food for man, we shall consider it under the three following heads: The quantity of food fit, 1. For those leading a sedentary life; 2. A life with exercise; and, 3. A life of labour.

1. Cornaro found, that twelve ounces of solid food and fourteen ounces of wine, or twenty-six ounces in all, was as much as he could consume with safety; and when he increased the former to fourteen ounces, and the latter to sixteen, even

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* The *luncheons* with meat, not in a cold state, but newly roasted, so common in high life, are much to be condemned. They are, in fact, early dinners; and, if justice be done to the real dinner afterwards, the stomach must be oppressed. A little light soup, and toasted bread, or bread with a little milk, or a biscuit and a glass of wine, are all that should be taken. To fast, from breakfast to a late dinner, is highly improper.

that moderate addition occasioned severe illness *. Another respectable individual, who tried experiments with diet in the 64th year of his age, adopted the following plan †. He took for

		Ounces.	
Breakfast,	Bread and butter,	4	
	Tea in dilution,	8	
			12
Dinner,	Bread,	2	
	Meat,	12½	
	Water,	4	
	Claret,	16	
			34½
Supper,	Water alone,		12
	Ounces, (or 3 lb. 10½ oz.)		58½

But he afterwards reduced his food to fifty-three ounces *per* day, on a medium, principally by diminishing the quantity of water.

There is certainly no individual who ever tried a course of severe experiments on diet with more attention, or with greater anxiety to be of service to the human race, than Dr William Stark, whose premature death is much to be lamented. It is impossible to give even a short abstract of the various experiments he tried, and the results of them; but it appears, that the utmost quantity of bread that he could eat in one day, when he took no other aliment, was forty-six ounces; and that the greatest quantity he could eat at one time, without uneasiness, was twenty ounces. For some days he eat only twenty ounces of bread *per* day, and took four pounds of water; and though he was comfortable, and in good spirits, he found it necessary to increase the allowance, not only as he lost flesh, but because he was very often hungry *.

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* See Code of Longevity, 1st edit. vol. iii. p. 63. On the whole, too much stress has been laid on the doctrines of Cornaro. Feyjoo remarks, that God did not create Lewis Cornaro to be a rule for all mankind in what they were to eat and drink. The learned Jesuit Lessius, who translated the Treatise of Cornaro from Italian into Latin, was so strongly persuaded by it, that he had bound himself under the same restrictions. He however, lived only to the age of seventy-nine, and that with many disorders which he laboured under. To one man, like Cornaro, who lived an hundred years with such strict diet, we may oppose a great number of others who have lived much longer without any such scruples. Cornaro's constitution required abstinence which few others could bear. *Father Feyjoo's Rules of Preserving Health*, p. 82.—Cornaro tells us, that in order to preserve his health, he not only resolved to restrict himself as to the quantity of his liquid and solid food, but carefully to avoid cold, fatigue, grief, watchings, and every other excess that could hurt his health. How should the business of the world be carried on, if, like Cornaro, every man were to begin following that system at the fortieth year of his age?

† See Robinson's Dissert. p. 62, 63, and Table 2.

Dr Cheyne has made a calculation of the quantity of food sufficient to keep a man of an ordinary stature, following no laborious employment, in due health, and vigour; he recommends eight ounces of flesh meat, twelve of bread, or vegetable food, and about a pint of wine, or other generous liquor, in the twenty-four hours. He adds, that the valetudinarian, and those employed in sedentary professions, or intellectual studies, must lessen this quantity, if they would wish to preserve their health, and the freedom of their spirits long †.

We need not however, attempt to lay down any regular system, on a subject so varied and so complicated. Those who keep temperance in view, will find little occasion to study general rules, which often prove a source of injury, from their inducing persons to try experiments with their digestive organs, which are ill suited to be tampered with. It is however, proper to observe, that *uniformity of diet* ought more carefully to be observed by the sedentary, than by those who are engaged in active occupations, and that it is highly important, as a general rule, to eat slowly, and to avoid satiety.

2. Individuals in the prime of life, whose occupation or disposition gives them full bodily exercise, need not be fastidious as to the quantity of food they consume. Nor is the quantity of every day to be strictly uniform; as circumstances connected not only with the state of their own health, but with the season of the year, the state of the weather, &c. may render the diet proper for one day very far from being the best for another.

3. Great bodily labour requires either very nourishing food, or a greater quantity of the usual victuals; and it is wonderful, how much may be done by management of the stomach in giving strength and energy to the body. But even in these circumstances, the stomach must not be nauseated by quantity, else the whole meal may be thrown away.

Considering the excesses so often committed, in regard both to solid and liquid nourishment, it is a matter to be wondered at, how many luxurious people live so long, and apparently in good health; but for this various reasons may be assigned. It will in general be found, that the luxurious feeders are in the habit of being much in the open air, perhaps on horseback, which is the most valuable means of preserving health. The food and drink of such persons, is generally of the best quality, and they are therefore saved from the injurious effects of unwholesome diet. If unwell, they can attend to their health, and have the advice of skilful physicians. To the misfortunes of others, even of their nearest relations, guzzlers become perfectly callous. They seldom give way to any anxiety regarding their own private affairs. They are careless as to the public welfare; and they likewise acquire many useful habits, in regard to cleanliness of person, &c. which materially contribute to the preservation of health.

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* The Works of William Stark, M. D. p. 93, and 99. The public are much indebted to Dr Carmichael Smyth for this useful publication.

† Essay on Health, p. 34.

Before the subject of the proper quantity of solid food is dismissed, it may not be improper to make some general observations on, 1. Abstinence; 2. Temperance; and, 3. Gluttony.

1. It is well known, that in some countries, occasional abstinence is enforced by law; and by several authors, it has been celebrated as a most judicious regulation. The propriety of occasional fasting seems very questionable, although so common a law in religious institutions; but there can be no doubt that, as a method of preserving health, it may from time to time prove highly useful, to reduce the ordinary quantity of food, because persons who live in the usual European society, are often led to indulge more than is necessary in the luxuries of the table. A person of great literary eminence, (John Home, the author of Douglas), who lived occasionally in London, bore, without inconvenience, the luxuries of that capital, by following a very simple rule, namely, that of eating only a poached egg on Sunday *. The celebrated John Hales, known by the name of 'The ever memorable,' was a great *faster*, it being his constant custom to fast once a-week, from his dinner on Thursday, till Saturday at breakfast †. And Cheyne recommends the luxurious to live low, or *maigre*, as the French call it, once a-week, or once a fortnight, or once in a month at farthest, or to take some domestic purge. Even without adopting any regular plan of fasting, it has been often found of service, when the stomach is disordered, or feels un-

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* A person of great experience has recommended, that those who transgress on one day, should repair the injury by greater abstinence on the next. Occasional fasting, without considering it as a religious duty, is believed to be the best remedy against too frequent feasting. See the Invalid, by a Nonagenarian, p. 28.

† He died 19th May 1656, at the age of 72. See Wood's Collect. There are some instances of fasting, and of great abstinence, in Adair's Natural History of the Human Body and Mind, p. 167.

easy from repletion, to refrain from the next meal or two, rather than to take physic. Abstinence from food for a short period, restores the force of the organs, by diminishing their exertions, and giving them rest *.

But it must not be imagined that abstinence is attended with no risk or danger, to those who have been accustomed to regular supplies of food, and who are not compelled by disease to refrain from it. Fasting for even twenty-four hours, is apt to be followed by disgust and aversion to food, and a tendency to putrescency, owing to the want of fresh blood. Abstinence therefore, although it has proved useful to some individuals, cannot be safely resorted to by all constitutions, as it has been found to produce a species of nervous irritability, which has been attended by very serious consequences. How many young women, for example, with a view to reducing corpulency, stint themselves of food, and ruin their health for ever †. Nay, it appears from the aphorisms of Hippocrates and those of Sanctorius, that it is safer to exceed a little in quantity, than to fall short; for the damage of a too full diet is soon remedied, either by exercise or evacuation; but the decay of strength, the natural consequence of too spare a diet, is not so easily repaired. In general indeed, the examples of abstinence which we meet with are rare, and the persons practising this rule, are for the most part those who lead inactive and solitary lives. In such cases, the waste of animal energy being but small, the usual supply can be more easily and safely dispensed with ‡.

2. A temperate diet, on the other hand, has always been attended with the best effects; a regular attention to which may be regarded as the only means likely to prove infallible in the prevention of disease. It is essential for those, who are under the necessity of having their minds always on the watch, to be extremely temperate; hence the gallant defender of Gibraltar, (Elliot, Lord Heathfield,) for eight days

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* The late Sir Thomas Munro, who maintained his health, during forty years' service in India, considered starving the best of physic, and he acted in his own person most rigidly on this opinion, when indisposed. Vide Appendix, Prevention of Fever.

† Valangin on Diet, p. 85. An intelligent physician has remarked how cautious medical persons ought to be, in prescribing a strict regimen in respect to diet, more especially if such regimen be intended to be continued long. Few persons, even of the best health, can, without disgust, bear to be confined to a particular food, or way of living, for any length of time. Things disagreeable to the palate, seldom digest well, or contribute towards the nourishment of the body; and the body must be weakened, when too small a quantity of food is taken in.—*Falconer's Observations on Diet and Regimen*, p. 8.

‡ Wainwright on the Non-naturals, p. 184.

during the siege, took only four ounces of rice *per* day, as solid food *. The celebrated Dr Franklin, when a journeyman printer, lived for a fortnight on bread and water, at the rate of ten pounds of bread *per* week, and he found himself stout and hearty with this diet †. A respectable magistrate, (the late Alderman Watson), who, at the age of seventy, was free from every bodily complaint, informed the author, that he had never paid five shillings a-year to the faculty in the course of his life, which he attributed to his having restricted himself to fourteen ounces a-day of solid food. And the number of indigent people, who have lived to a great age, is a proof of the justness of Lord Bacon's observation, that life may be sustained on a very scanty portion of nourishment ‡.

Hay, in his Essay on Deformity, contends, that health is more in a person's own power than is commonly imagined, and is rather the reward of temperance than the effect of constitution §.

3. Of the causes of ill health, among the luxurious and wealthy, the principal one is the variety and excess of food.

No man, says Galen, will ever be seized with a disease, who takes sufficient care to avoid crudities or indigestion; that is, who eats no more than he can digest: and Cheyne maintains, that what is eaten and drunk, and taken into the habit, is the original cause of almost all the diseases which afflict mankind, with the exception of those arising from external accidents, pestilential and contagious miasms, or from the passions of the mind.

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* Adair's Medical Cautions, 2d edit. p. 142.

† The Works of William Stark, M. D. p. 92.

‡ The following remarks on this subject, are from a person of great eminence in the medical department of the army: "I have wandered a good deal about the world, and never followed any prescribed rule in any thing; my health has been tried in all ways; and, by the aids of temperance and hard work, I have worn out two armies in two wars, and probably could wear out another before my period of old age arrives; I eat no animal food, drink no wine or malt liquor or spirits of any kind; I wear no flannel; and neither regard wind nor rain, heat nor cold, where business is in the way."

§ "If every virtue in its consequence," he adds, "is its own reward, temperance is eminently so, and every one immediately feels its good effects. The maxims of temperance, however paradoxical they may appear, are not the less just; among these, it may be stated, that the smallest liquors are the best; that there never was a good bowl of punch, nor a good bottle of champagne, burgundy or claret; that the best dinner is one dish; that our entertainment grows worse in proportion as the number of dishes increases; that a fast is better than a lord mayor's feast; that no connoisseur ever understood good eating; that no minister of state or ambassador ever gave a good entertainment; no king ever sat down to a good table; and that the peasant fares better than the prince, &c. Being inspired with such sentiments, what wonder is it, if I sometimes break out into such ejaculations.—O temperance! thou goddess most worthy to be adored! thou patroness of health! thou protector of beauty! thou prolonger of life! thou insurer of pleasure! thou promoter of business! thou guardian of the person! thou preserver of the understanding! thou promoter of every intellectual improvement, and of every moral virtue!"

The inventions of gluttony also, are often detestable. What can be more pernicious than the mode of preparing what is called *a devil*, for the purpose of creating thirst? The gizzard of a turkey, for example, is *bedevilled*, as they term it, with pepper and salt; then a little nutmeg, a little cinnamon, a blade of mace, with shallot, onions, &c. are added, and it is eaten with oil, vinegar, and mustard. Such an heterogeneous mixture, it has been well observed, must become a caustic fluid, tearing or destroying the finer vessels, and generating fevers, calentures, and every disease incident to the human body *.

Impressed with a full conviction of the dangers resulting from excess, the author of this work, early laid it down as the best rule he could adopt for the preservation of health, to pay a proper attention to TEMPER, TEMPERANCE, and SLEEP. By good temper, the mind is preserved from disease, and by temperance, the body; and, when both the mind and the body are exhausted, they are restored to their former strength, by a sufficient quantity of repose.

In addition to the preceding observations, it may be proper to make a few cursory remarks, regarding the rules which ought to be adopted with respect to food, in sickness, and in old age.

Sickness.—The rules of diet in sickness, is a subject of great extent, and properly belongs to the medical department. It is advisable, in such cases, to have the aid of an intelligent physician, to whom the diet of his patient must necessarily be an object of particular attention, and whose prescriptions will of course vary, according to the nature of the disease, the constitution of the patient, and the circumstances of each particular case †.

Old Age.—The diet of old age should, as we have said, in some degree, return to that of the early periods of life. Broths and liquid food, with sufficient farinaceous matter, may again be taken in greater proportional quantities,—every assistance which cookery or art can give, towards increasing the *masticatability* of diet, (if we may coin a word for the occasion,) ought to be resorted to;—and all the nourishment taken should be of the most digestible kind. A moderate proportion of the safest condiments may be used at this period of life, for the appetite becomes more languid, and the springs of the machine less able to perform the operations that are required. In regard to drink, the use of fermented liquors, more especially wine, under due regulation, may be allowable at this period of life; for the vital powers require, in some degree, to be supported, and the languid action of the system to be kept up.

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* See the Invalid, by a Nonagenarian, p. 55.

† Arbuthnot, in his Treatise on Aliments, chap. iii. and iv. has given a variety of practical rules of diet, applicable to the different diseases, but in a style hardly intelligible to any but medical men, which, perhaps, indeed, was the author's intention.

As any error in the diet of age however, is more dangerous than at any other period of life, it may not be improper, to be more particular regarding this branch of the subject.

It is certainly more healthful for old people to eat three or four times a-day, than to make one full meal only. No aged person however, should eat animal food oftener than once in the day. The stomach will digest a dinner, when breakfast and supper have been light; but if the digestion of one meal be not completed, before another is taken, there is little chance of either being properly disposed of.

Pork, and perhaps beef, ought to be avoided; but mutton, poultry, rabbits, and fish, are well calculated for elderly people, and certainly afford a sufficient variety.

The breakfast ought to be moderate, the dinner wholesome and nourishing, and the supper should be exceedingly light. The stomachs of old people should never be overloaded. The meals however, should be so arranged, that the appetite should not be fasted away, as the power of digestion goes with it.

During meals, weak malt liquor is better suited for old people than wine; but a few glasses of wine may be taken after dinner, by those who have been accustomed to that liquor *. Good ale or porter is best for those to whom wine is not a necessary of life.

Particular care ought to be taken by the aged to eat no butter or cheese but of the best quality, and in moderation.

Fruits, when thoroughly ripe, are innocent, the pine apple excepted, which is extremely dangerous to old people.

All mixtures of food, or variety of dishes, ought to be shunned by persons advanced in years, who ought also to be upon their guard, against those articles to which they have

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* The art of preserving long life and health must consist, in using no greater stimulus, whether consisting in the quantity or kind of our food and drink, or in external circumstances, such as heat and exercise, and wakefulness, than is sufficient to preserve us in vigour; and gradually as we grow old, to increase the stimulus of our aliment, as the irritability of our system decreases.—*Darwin's Zoonomia*, vol. i. p. 468.

not been accustomed *, or which experience has taught them they ought to avoid.

CONCLUSION.—*General Rules.*

We shall conclude with some general rules, necessary to be attended to, regarding the consumption of solid food.

1. We should not eat immediately after exercise, nor when we are hot, but forbear until the mind is quiescent, and the body cool. Neither, if possible, should we sit down to a meal burdened with care or business; for, owing to the sympathy between the brain and the stomach, an agitated or anxious mind will impede the functions of the stomach. It is for this reason, that we ought not to eat alone, in a churlish melancholy manner, but cheerfully with our friends. Mirth and good company help a dull stomach, create an appetite, and forward digestion.

2. It is a proper rule, never to eat a second time, till the stomach has completely emptied itself of the previous meal; and the last meal of the day, ought to be taken so long before bed-time, that digestion may be nearly finished before the hour of rest; for the preparation of our food by the stomach, and the application of it to nourish the body, are actions of a different nature; the former being attended with a species of irritability, inconsistent with refreshing sleep; and the latter going on apparently most beneficially during the period of complete repose. As a general rule it may be laid down, that it is better not to eat till an hour or two after rising in the morning, and to eat nothing for two or three hours before going to bed †. The proper interval between one meal and another, must depend on the strength of the stomach, and the quantity and quality of the food taken, varying from four to six hours.

3. Exercise ought not to be taken immediately after dinner, as it is generally found injurious to withdraw the energies of the system from the organs of digestion, during this impor-

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* See the subject more fully discussed, in the Old Man's Guide to Health and Long Life, by J. Hill, M. D.; also the Nurse's Guide; to which is added an Essay on Preserving Health, and Prolonging Life, by an eminent Physician, cap. iii. p. 87.

† Burton on the Non-naturals, p. 230. Wainwright's Mechanical Account of the Non-naturals, p. 208, recommends three hours after rising, and four or five before going to bed, founding this doctrine on several aphorisms of Sanctorius, particularly Sect. I. No. 57, Sect. IV. No. 20, 28, and 35. But this certainly would be going too far.

tant process. This rule is particularly worthy of the attention of the delicate and the nervous. The brute creation instinctively act on the principle of taking rest after a full meal.

4. It is of the utmost consequence, that our food should be thoroughly masticated. This is not only a means of breaking down, and preparing it for the process of digestion, but by mixing it thoroughly with the saliva, it gives the stomach the advantage of that fluid in the performance of its functions. To eat greedily therefore, and swallow meat hastily, is both vulgar, and highly injurious to health.

5. It is proper to restrict ourselves to those kinds of food, which experience points out as the best calculated for our constitution and stomach. Whatever lies heavy on the stomach, or rises in it, *reproaching us*, long after it is swallowed, or substances which are flatulent, or which occasion heartburn, griping, or other derangements of the bowels, will, by people of sense, be carefully avoided; for these are the sure indications of improper digestion, and the forerunners and the sources of numerous disorders *.

6. The question as to the propriety of our consuming a variety of alimentary substances at one meal, has been made the source of much discussion. We have repeatedly observed, that man's alimentary apparatus is evidently prepared for a mixed diet; and experience has taught us, that rigid simplicity is far from being indispensable. The celebrated Cullen says, that he never found any inconvenience result from mixtures of food, provided the different substances were partaken of in moderation †. It is therefore, rather against the abuse of mixtures, or we may say gluttony, that the objection to a variety of meats, at one meal, should be levelled. There are however, exceptions to this; as taking acescent substances with milk; or, mixing fish with milk, by which the milk is coagulated too firmly to be easily digested. The principal objection, and it is too well founded, to a variety of dishes is, that it provokes gluttony. Physicians have therefore, almost universally preferred simplicity of diet, as satiety is sooner produced by one, than by many substances ‡.

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* Now, hear what blessings Temperance can bring:
First Health,—the stomach crammed from every dish,
A tomb of boiled, and roast, and flesh and fish,
Where bile, and wind, and phlegm, and acid jar,
And all the man is one intestine war,
Remembers oft the schoolboy's simple fare,
His temperate sleeps, and spirits light as air.

† Materia Medica, p. 105.

‡ A variety of dishes, it is said, is a suitable entertainment for grandeur and

7. The conflicting rules laid down, regarding the quantity of food to be taken at meals, are rather amusing. One author very gravely recommends his readers, never to fill the stomach so full, as to render it necessary to *unbutton* or *unlace* [*], while others contend, that we ought to eat as much as we can. And the minute directions which some writers on dietetics pretend to lay down on this subject, are not less ridiculous. Many precepts as to weighing solid food, and measuring fluids, proposed for general use, are, in truth, the most likely means to lead to serious dyspeptic affections.

The following rules on this subject are all we shall venture to suggest: 1. We ought always to desist from eating before the sense of fulness becomes oppressive. If the stomach be too full, digestion is not only stopped, but a kind of palsy of that organ is produced [†]. 2. If, after a meal, a person can write, walk, or attend to business, with ease; and if, after supper, he find his rest not shortened or disturbed by what he has eaten or drunk, and if he rise next morning without a headach, or a bad taste in his mouth, he may safely infer that he has not transgressed the rules of temperance.

8. Custom is another point to be considered in the choice of food. What we have been long used to, generally agrees with us [‡]. Change of diet is apt to cause some alteration [§];

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gluttony; but though a good stomach may digest fish, flesh, fowl, wine, and beer, at one repast, yet nothing can be more prejudicial to the health, than our indulging ourselves in a discordant variety of aliments at the same meal; and if we add, (which is too frequently done), fruits, cream, and salads, to the articles mentioned, the bowels will be distended by the flatulent mixture, and the digestion rendered nearly impossible. The truth is, that as different substances require different periods for their digestion, and as the stomach endeavours to convert a whole meal into a homogeneous mass before it passes it on to the bowels, it may happen, that the wholesome and digestible articles swallowed are retained in the stomach by the indigestible articles accompanying them, and an acescent and unwholesome mass, instead of pure chyle, may be the result. It is highly expedient therefore, that persons with weak stomachs, should eat but one sort of meat, which will be all digested and expelled at nearly the same time.

[*] The Family Companion of Health, p. 23.

[†] Adair's Medical Cautions, p. 255.

[‡] We are much governed by habit in regard to food; for instance, beer taken to breakfast will disturb the digestion of those who have been accustomed to tea; and tea taken to dinner will disagree with those who have been accustomed to beer.—*Darwin's Zoonomia*, vol. i. p. 454.

[§] The following judicious observations merit attention. There are some who, after living freely, and indulging themselves in wines and rich food, feeling bad effects from such a course, commence a different mode of life; observe precise rules; live mostly upon a vegetable diet, and use only water for their drink: such sudden changes are not safe. From the spare diet they have adopted, the powers of digestion become enfeebled, a collection of crudities, or an accumulation of phlegm in the stomach and intestines, necessarily takes place. They become meagre, sallow, and relaxed, and the only chance they when a new diet therefore, offers itself, as upon change of residence, we should at first be sparing; upon further use we may be bolder. Nay, even with those to whom a change of diet becomes necessary, it should be brought about by degrees.

9. There are a number of miscellaneous rules, regarding solid food, which cannot be comprehended under any particular head, among which the following merit attention: 1. The nourishment we take, unless in youth, should be merely sufficient to supply the waste of the system. 2. If by any accident, as in travelling, a person has lost his dinner, he ought not to eat a voracious supper, to make up for it, otherwise he will spend a restless night. 3. It is a vulgar error to imagine, that the more a man eats, the stronger he will become; for, whoever eats more than nature requires, receives less nourishment, and thereby impairs his strength. 4. People in general, especially those who do not labour, eat much more than nature requires. A little abstinence or self-denial, may often be of use, either to prevent or cure disease. None but hard-working people, or those who are growing fast, should eat more than one substantial meal each day. 5. Food which generates much air, should be avoided by those having weak stomachs. 6. Adults are better nourished on meat having a tendency to putridity, (alkalescent); but the young and growing, on gelatinous foods. 7. Hippocrates justly observes, that we ought to prefer that food and drink which is most agreeable, even though of a less wholesome quality, to that which may seem better for us, but is unpalatable*. 8. It is unwholesome, after a great load of animal food, to eat custards, tarts, pies, almonds, nuts, cream, and a variety of other articles, for the stomach having already received fully as much as it can well digest, the additional quantity overloads it, creates fever, and becomes prejudicial to the constitution.

Some general observations, regarding the diet of the rich, and of the poor, may not be unacceptable at the conclusion of this chapter, though, for more minute details, the preceding pages of this, and the former chapter, must be referred to.

The diet of the rich, ought to consist of articles which afford moderate, but wholesome nourishment, which fill the stomach without overloading it, and, above all, which are easily digest-

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have of a restoration to health, is to return to a more generous diet, to make use of a proper admixture of animal and vegetable food, and to drink more vivifying liquors. See some Thoughts on the Relaxation of Human Bodies, p. 18.

[*] Aphor. Sect. ii. Aphor. 38.

ed. With animal food therefore, a considerable quantity of bread, potatoes, and other vegetables, ought to be taken. The following proportions of the different sorts of solid food, may, in general, be most advisable, namely, one-fourth of animal food; one-fourth potatoes and other vegetables; and two-fourths of bread.

The laborious poor, on the other hand, while they require nourishing food, are far from being equally dependent on its digestibility. A considerable portion of time must intervene between the meals of a labourer; and were his diet immediately convertible into nourishment, he would be too soon called upon to replenish the stomach, or he would be incapable of prolonged exertion. It may therefore be laid down as a rule, that a labouring man's food, should be nutritive, but not very digestible; and that those exposed to hard work, and prolonged exertion, may at meals fill their stomachs to repletion, with simple fare *. In England, the labouring classes use much animal food, which, very properly, they usually prefer in a salted state. In Scotland, a labourer's diet consists principally of broth, made thick by various vegetables, to which he adds potatoes or bread.

Perhaps the best plan for the nourishment of the labouring classes, hitherto introduced into practice, is that adopted by the keelmen of Newcastle, who buy fat meat, which they make into broth. The liquid part is given to their wives and children; the solid part they consume themselves, in a cold state, along with bread, in slices, taking it with them to their work. Such meat is not so nourishing, as when roasted or baked; but this deficiency is amply made up for, by an addition to the quantity.

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* A palankeen bearer in India will, we are informed, fill his stomach with rice, until the effects are alarmingly prominent *externally*, immediately before a night's run of fifty miles; and if allowed time, will replenish the stomach to an equal extent with cold rice, during the journey.

CHAP. IV.

ON DIGESTION, AND ITS RESULTS.

When we consider the immense quantity of liquid and of solid food, consumed by one human being within a single year, and still more the aggregate, during the course of a long life, it is natural to inquire,—what purposes can such a variety of articles answer, and how can all of them be disposed of by the stomach? In the course of a life of ordinary duration, the produce of many acres of land, the flesh of a number of oxen, and the contents of many tons of liquor, are consumed by one individual; whilst, in regard to size and bulk, he continues nearly the same, whether he drinks the pure stream, or the most skilfully compounded beverage; whether he feeds on a variety of articles produced from the animal and vegetable kingdom, or confines himself to one particular substance; and, whether his food be prepared in the plainest and simplest manner, or by the most refined and artificial modes which luxury has hitherto invented. All these phenomena are explained by the process called *digestion*, the consideration of which forms the subject of this chapter. It will be discussed under the following heads: I. The nature of Digestion, and its results; II. The nature of Assimilation; III. The Excretions; and, IV. The means of promoting Digestion.

Sect. I.—*Of the Operations of the Stomach, in preparing Nourishment for the Body.*

The stomach of an animal is always prepared for the particular description of food, which it naturally consumes. Thus, in the purely carnivorous animal, as in the hawk or tiger, the stomach is a simple bag, the alimentary canal is short, and the whole digestive and excretory organs are evidently adapted for food of easy assimilation. In the graminivorous animal again, there are a variety of complicated stomachs; and the intestinal canal is greatly prolonged, proving that a variety of processes are indispensable in the digestion of the food, and that the quantity of it, which passes into the bowels, requires an extensive surface for the absorption of its nutritious portions. In man the digestive organs partake to a certain degree of both of these species. His stomach properly so called, is subdivided into two compartments; and while the length of his intestinal canal is moderate compared with that of the sheep, it is long compared with that of the tiger; proving, were such proof necessary, that his food is intended to be of a mixed character, and that he is prepared to digest both animal and vegetable matter.

From the moment that a portion of food is received into the mouth, the process of digestion may be considered as being commenced; the various parts of the mouth, being in truth digestive organs. The food is masticated by the teeth, in which process they are assisted by the muscles of the cheek, and partly by the tongue; while the salivary glands, which lie under the jaw and tongue, pour in their secretion not only to lubricate the food, but by admixture with it, to soften and prepare it for the digestive operations of the stomach.

The food on being swallowed, is received into the left side or larger bag of the stomach, where it is exposed to a solvent fluid or secretion, which has obtained the name of the *gastric juice*, and which appears to be thrown out by the surface of the stomach. This solvent gradually acts upon the aliment, changing it into a grey pulpy mass, which has obtained the name of chyme; and as this matter is formed, it is passed on to the right side or smaller bag of the stomach, where it may be supposed to undergo a species of examination; for there is reason to believe, that if found improperly concocted, instead of being passed on through the pylorus, as the farther opening of the stomach is called, it is returned to the greater bag, to be again exposed to the operation of the gastric juice. This of course only happens when the powers of the stomach remain uninjured *.

In this first stage of digestion, the process is assisted by the muscular action of the stomach, which, by its peculiar motion, appears to be enabled, as it were, to shake up its contents, and expose every particle of the food to the action of the gastric juice on its surface. It would also appear that the temperature of the body performs an important part in the process of digestion, because in experiments with the gastric juices out of the body, a heat equal to the animal temperature, is required in order to produce changes, resembling those which occur in the stomach *.

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* On the state of the stomach indeed, depends that of every organ and function of the system. Van Helmont calls the inferior aperture of the stomach, (the pylorus), the careful sentinel, which denies a passage to any thing injurious to health; and other authors have called it, the animal, the conscience of the body, and the seat of the soul.

The food, being converted into chyme, is passed by the stomach into the duodenum, a portion of the intestines well worthy of the name, which it sometimes obtains, of the second stomach; for it is here that assimilation really takes place.

In addition to its own peculiar fluid, called the duodenal juice, which seems to be secreted on its surface, in a similar manner to the gastric juice of the stomach, the duodenum receives the bile and pancreatic juice, the secretions of two important glands, the liver and pancreas. The former, whether viewed with reference to health or disease, is unquestionably one of the most important organs in the body.

The *chyme* then, having been elaborated in the stomach, is received into the duodenum, in the form of a grey homogeneous pulp, and a great part of it is, in this portion of the intestines, changed into a white-coloured fluid, which has obtained the name of *chyle.* This fluid is not only capable of being absorbed and circulated by the absorbing vessels of the intestines, which, from the colour of their contents, have obtained the name of Lacteals, but without farther change, it is added to the blood in its way to the right side of the heart, being, in fact, the means by which the waste of that all-important fluid is replenished. This process, which may be considered as the completion of assimilation, takes place in the convoluted tube called the *smaller intestines*, where the lacteals lie open-mouthed, ready to absorb all the chyle which has been elaborated in the duodenum. What is found unfit for the formation of chyle, appears to combine with a part, at least, of the bile or secretion of the liver, and being passed on through the intestines along with the chyle, receives additions as it advances, from the excretory vessels of the system, and is at last received into an enlarged portion of the intestines, called the colon, which is, in effect, a reservoir for excrementitious matter. Here the more solid excrementitious matters are stored, as the liquid refuse is in the bladder, until it is convenient to discharge them. As in this portion of the bowels, although there are no lacteals, there are numerous absorbing vessels, the longer the feculent matter remains in the colon, the more consistent does it become.

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* The following fact is doubly interesting. The stomach, after sudden death, is sometimes found dissolved by its own gastric juice, thus at once proving the power of this digestive fluid, and the influence of life in defending the stomach from its solvent qualities.

SECT. III.—*The Process of Assimilation and Nourishment.*

WE have now considered the progress of digestion, and the formation of the blood, in so far as it is proper to enter on that important subject in a work of a popular nature. We shall now proceed, with similar brevity, to explain, as far as is known, the uses to which the blood thus elaborated is applied. The component parts of the body, as has been already observed, are continually changing. It is necessary therefore, that materials should be provided, for increasing, repairing and renewing the bones, the muscles, the ligaments, the membranes, and all the various organs. These materials must be in perpetual circulation, in order that they may be ready whenever they are wanted; and it is the blood apparently which performs this important office.

It would force us to travel out of our proper path, to speculate on the interesting subjects of nourishment and absorption. It is sufficient to observe, that the system possesses within itself, a power of regenerating, as well as re-forming most of the materials of which the body is composed. The growth of the nails and of the hair affords, to common observers, a demonstration of the changes which are constantly going on in our frame; but by far the most interesting example of the wonderful provision of nature, is to be found in the repairing and replacing of bones destroyed by disease or accident. It is well known, that a fractured bone is, if left at rest, reunited; but what every one, not blind to the deep interest of this subject, ought to see, (and examples of it may be found in every surgical museum), is the progress of the disease called *necrosis*. In this affection, the shaft of a bone having become diseased, the individual is in danger of losing the use of his limb, and would do so, but that the diseased portion of bone is forthwith surrounded by a case of boney matter, which soon incloses the dead bone, maintaining the limb in its due proportion; and when this newly-formed bone is of sufficient strength to support the body, the dead portion is separated, and finding its way through a hole in the newly-formed case, it presents itself on the surface, and to the surprise of the patient, the whole of the bone of his limb appears to be removed. This interesting process can be seen in its various stages; and although physiologists may not be able to explain the means by which it is accomplished, it presents a very striking example of the beautiful provision by which premature decay of the system is prevented.

SECT. IV.—*Of the Excretions.*

THE constant changes which we have thus hinted at, as going on in the system, render it necessary of course, that the materials which have been displaced, by the newly assimilated matter, should be discharged from the body; at the same time, as every thing taken into the stomach is not capable of assimilation, a part of the aliment must also be discharged. The excretions therefore, are principally composed of the discarded materials of the body, and also of what has been swallowed as food, but found unfit for use. These are discharged from the system by means of the *lungs*, the *bowels*, the *bladder*, and the *skin*.

We have already, when referring to respiration, stated, that an important portion of the debris of the system is thrown off by the *lungs*. It is not therefore necessary that we should recur to that point.

The evacuation by the lungs, being little under our controul, we have it not in our power to influence health by increasing or diminishing it. The case is very different with regard to the discharges from the *alimentary canal;* and with a view to health, there is no subject of more importance than attention to the bowels. We shall therefore be excused, we trust, for treating this subject pretty fully.

The sources from which excrementitious matters are derived, are apparently threefold, viz. the refuse of the food, the secretions of the great abdominal glands, and the excretions from the blood. Although most extraordinary instances are on record of infinite diversity with regard to the periods of the feculent discharge *, it is very certain that regularity in the alvine evacuation is necessary to the human being.

In discussing this subject, it will be proper to consider, 1. The rules regarding this evacuation, when the body is in a healthy state; 2. The rules to be observed when the body is costive, or the evacuation scanty or irregular; and, 3. The measures to be adopted, when the discharge is too abundant.

General Rules.—It is particularly desirable to have a regular alvine evacuation every morning, either before or after breakfast; indeed, there is no hygeian maxim of greater consequence than this; custom renders it almost always possible; and the attempt to acquire and keep up such a habit, should be an object with every one.

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* A very great difference is observable in different constitutions, in regard to the evacuations by stool. It is said of one man, that he went but once in a month; another had twelve stools every day for thirty years, and afterwards seven in a day for seven years, and, in the meantime, did not fall away, but rather grew fat. See Heberden's Commentaries on Diseases, p. 16.

The best means of promoting the alvine evacuation, are the following: 1. A due attention to bodily exercise. 2. A due proportion of liquid, to our solid food, particularly at dinner. 3. A proper choice, and a due quantity of solid food. 4. Avoiding too much indulgence in sleep, which has a tendency to promote a discharge by the skin, at the expense of that by the bowels *. 5. Laying aside all strait garments, especially tightly laced stays, and tight waistbands †.

Every one ought to lay it down as a general rule, never to disappoint nature, in regard to discharges from the bowels. The inclination, if not yielded to, goes off; and, in the ordinary state of the bowels, it will not be easy, if the regular call have been disregarded, to force an evacuation without the aid of medicine ‡.

The feces, in a natural state, should be of a due consistence, —formed, but not hard; '*oportet sanorum sedes esse figuratas.*'

Costiveness.—When the stools are dry and difficult to discharge, the body is said to be costive; a condition which may produce many disorders, as headachs, toothachs, difficult breathing, flatulency, eructations, spasms, palpitations of the heart, &c. Constipation is also a source of peevishness of temper, hypochondriasis, and a thousand other ills.

By a little attention to circumstances, a cause will generally be discovered for costiveness; as the nature of the food §; the heat of the air; too much exercise, especially on horseback; drinking rough red wines, and other astringent liquors, &c. Lead may prove the source of alarming constipation of the bowels,—hence the painters' colic. Constipation may be likewise occasioned by keeping the body too warm; by wearing flannel night and day; by lying too long in bed; by excessive labour; by intense thought; by sadness, grief, and by a sedentary life *. In old age, constipation is generally the consequence of a failure in the powers of the body. But a costive habit may also have a constitutional cause, as a deficiency of bile, or of the other juices required in the stomach and intestines.

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* Rising early, and going abroad in the open air, are favourable to regularity in this respect. The posture in bed is unfavourable to regular stools, so also is the warmth, which by promoting perspiration, lessens all the other discharges. This is one of the strongest arguments in favour of early rising.

† Willich's Lectures on Diet and Regimen, p. 513; and Turnbull's Medical Works, p. 138.

‡ There is every reason to believe, that several of the disorders incident to females, take their rise from neglect in regard to this necessary evacuation; which is not unfrequently to be traced to false modesty.—*Taylor's Remarks on Sea-water*, p. 62.

§ London bread has a great tendency to promote costiveness. It is commonly watered with a solution of alum, to render it light, and to give it whiteness. Pieces of undissolved alum have often been found in London bread; and the dealers in alum, will in general acknowledge, that they sell more of that article to bakers, than to all the other manufacturers put together.

Costiveness, even to a considerable extent, may prevail in robust and otherwise healthy people, without immediate injury; but this constitutional costiveness has a dangerous tendency, and it is desirable to rectify it †.

When an eminent physician, Sir Charles Scarborough, was consulted by the Duchess of Portsmouth, as to what remedy he would recommend for this complaint, he jocosely answered, 'You must eat less, or use more exercise, or take physic, or be sick.' The modes of removing costiveness, and avoiding the last alternative, *sickness*, may be considered under four general heads: 1. Habit; 2. Useful practices; 3. Diet; and, 4. Medicine.

1. The celebrated philosopher Locke, who was himself a physician, has treated at considerable length, the subject of attention to habit, in counteracting costiveness. He observes, that going to stool regularly, has a great influence on the health; and he asserts, that if any person, after his first meal in the morning, would presently and daily solicit nature, so as to obtain a stool, he might in time bring it to be habitual ‡.

Costiveness is sometimes owing to the use of flannel, which, by increasing the perspiration beyond what nature requires, dries up the humours, and draws from the internal parts the fluid particles of the body. It is therefore advisable, where flannel must be worn, to throw it off at night, by which perspiration will be considerably diminished. This rule cannot be too strictly observed.

2. An ancient practitioner in physic was accustomed to advise those who were costive, and who procured a stool with difficulty, to sit over a pot with hot water in it §. What are

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* Buchan's Domestic Medicine, p. 390. The late Dr Donald Smith of Edinburgh, the best Celtic scholar of the age, though a medical man, fell a sacrifice to costiveness.

† Hamilton's Observations on Purgative Medicines, p. 9.

‡ See Locke's Thoughts concerning Education, par. 23, 24, 25, 26, 27, 28, where the subject is very fully discussed. It is a treatise, which, on many accounts, merits the attention of parents.

§ Smith's Curiosities of Common Water, &c. p. 49.

called *steam boxes* have recently been invented for that purpose. Such means however, will only prove serviceable where the source of the difficulty is a spasmodic condition of the sphincter of the anus.

3. A costive habit may be removed by certain articles of diet, such as roasted or boiled apples, pears, stewed prunes, raisins, gruel with currants, butter, honey, sugar, and such like; broths with spinage, leeks, and other soft pot-herbs; also beetroot and turnip. Bread made of fine flour ought to be avoided; rye-bread, or a mixture of wheat and rye, is laxative; as also is barley-meal porridge.

Malt liquor, butter-milk, whey, and such watery fluids, as generally prove of an aperient nature, should be resorted to as drink.

The celebrated Arbuthnot strongly recommends the use of the expressed oils of mild vegetables *, as olives, almonds, pistachios, and the like, and even animal oils.

Bathing has sometimes been found of service in removing costiveness.

4. Persons whose bowels are irregular, ought to be dissuaded, unless under the directions of a skilful physician, from the habitual use of purgatives; as such a habit is apt to injure the constitution. We have ventured to insert in the Appendix, some observations on such medicines as will be found useful to those suffering from obstinate constipation of the bowels †.

Looseness is often the effect of immoderate eating, part of the food not being properly digested; the bowels are irritated, and frequent evacuations are the consequence. It also happens, that looseness may be occasioned by a sanative effort of nature, consequent on the lodgment in the bowels of crudities, which, if not removed, would prove the source of injury to the system ‡.

As habitual looseness is often owing to obstructed perspiration, persons affected with it ought to keep their feet warm, to wear flannel next the skin, and to take every other method to promote perspiration. Such persons ought likewise to suit their diet to the nature of their complaint. They should use food which braces and strengthens the bowels, such as wheaten bread of the finest flour, biscuit, cheese, eggs, rice boiled in milk, and the like. Their drink should be port wine, or claret, instead of white wine. They cannot be too cautious in the use of watery, saline, and easily fermentable articles of food and drink; and they ought to avoid violent fits of anger, and the over indulgence of other passions.

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* A friend of the author, who was subject to costiveness, after consulting many eminent physicians, has at last adopted the following plan, which he finds an effectual remedy for that complaint. He takes three table spoonfuls of olive oil, nearly a table spoonful of vinegar, and the yolk of two boiled eggs, to which he adds a little common salt. He eats this at dinner, with salad, in the spring and summer, with boiled pease or beans in the autumn, and with raw celery in the winter. This prevents costiveness, but can scarcely be recommended for general use, as the ingredients would derange most stomachs.

† Vide Appendix, *Management of the Bowels.*

‡ There was an old woman, named Elizabeth Alexander, residing in London, aged above 100, who was periodically liable to a relaxed state of the bowels, after which she always enjoyed for a time better health.

Habitual looseness however, is not to be trifled with; the best medical advice should be taken early, to check or to remove it *.

Urine is separated from the blood, in the kidneys, two glands which lie in the loins on each side of the spine. These are supplied with large blood-vessels, and a beautiful apparatus for the secretion of urine. The kidneys communicate directly with the bladder by means of tubes, which convey the urine to that reservoir as quickly as it is formed in the kidneys; and it is retained in the bladder until it can be conveniently discharged from the body.

No animal secretion has attracted more attention than the urine, not only on account of the supposed effect produced on it by various diseases, but in consequence of the variety of products which have been obtained from it; chemists having found in healthy urine, not fewer than seventeen different substances.

The removal from the blood of the ingredients of which the urine is composed, seems to be indispensable towards the continuance of health. For, although an increased discharge from the skin, may diminish the quantity of urine secreted, still it is found that life cannot long exist after the functional operations of the kidneys have ceased. The due secretion of urine therefore, is of the utmost importance to the system.

But while it is indispensable that the function of the kidneys should be duly performed, it is no less so that the bladder should be emptied in due time *. Some, like Tycho Brahe, have lost their lives, and others have brought on tedious, as well as incurable disorders, by retaining, from false delicacy, their water too long. Delicacy is doubtless a virtue, but it ought never to be carried to the extreme of injuring health, or of hazarding existence. The calls of nature therefore, ought never to be put off †.

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* In common complaints of the bowels, the following remedy may be tried: Let 15 grains of rhubarb be put into a table spoonful of rum: set fire to the rum, and let it flame till it will burn no longer; then mix it with 15 grains of magnesia, and 5 drops of laudanum; and take the whole, at night or morning, in a wine glassful of peppermint water. In the West Indies, they take castor-oil in a similar manner. They set fire to a tea-spoonful or two of rum, over a large spoonful of the oil, then extinguish the flame, and swallow the oil and burnt spirit.

It is less dangerous to delay the evacuations by stool, than those by urine; for if the bladder be permitted to be over-distended, paralysis is produced, ulceration, and bursting of the viscus ensues, followed by internal effusion of urine, and death. The urine, on the one hand, should neither be too long retained, which may occasion inflammation, nor should it be too often evacuated, for thus the bladder becomes narrowed, thickened, and contracted, and loses its natural size and shape ‡. But urine may be in too great, as well as too small a quantity. This may be occasioned by drinking large quantities of weak watery liquors, by the excessive use of alkaline salts, by disease in the kidneys, as *diabetes*, or by any thing that stimulates these organs, dilutes the blood, &c.

The circumstance of urine depositing a sediment like brick-dust, soon after it is passed, if unaccompanied by other symptoms of disease, ought not to occasion any alarm.

The diseases of the urinary organs are so well defined, and so comprehensible to the unscientific, that they have always been a source of great popular interest. Thus, the symptoms of gravel are scarcely to be misunderstood, and every one can conceive the agony produced by the passage of gravel through the urinary passages. And who does not look with horror on the suffering produced by a stone in the bladder; or on the operation of lithotomy; or even on the revived operation, of braying down a stone within the bladder * ?

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* Dangerous retention of urine sometimes occurs in females. who, from delicacy or indolence, neglect the call to evacuate the bladder. The consequence is, that the bladder, after being filled beyond a certain point, loses the power of emptying itself.

† Buchan's Domestic Medicine, p. 119. In a work lately printed at Paris, there is a section,—' *De l'importance de satisfaire aux besoins naturels,*' in which there are the following just remarks : ' Les femmes sont souvent victimes d'une fausse honte, que l'intérêt de leur santé, mieux entendue, leur ferait surmonter facilement. On a vu des maladies incurables, et même mortelles, occasionnées pour avoir retenu trop long-tems son urine, &c. Dans sa voiture, dans les voitures publiques, dès que le besoin se fait sentir, il faut faire arreter, descendre, et le satisfaire.—*Médecin du Voyageur, par le Docteur Duplanil,* tome i. p. 63.

‡ Turnbull's Medical Works, p. 143. When the urine is too long retained, a part of it is sometimes again taken up into the mass of fluids ; and what remains stagnant in the bladder, becomes thicker, the more watery parts being removed, and the gross and earthy particles remaining behind. By the constant tendency which these have to concrete, the formation of stones and gravel in the bladder is promoted. Hence it comes to pass, that indolent and sedentary people are much more liable to these diseases than persons who lead a more active life.—*Buchan's Domestic Medicine,* p. 119. Position is of some consequence in evacuating the urine, and it will be found, that gravel is generally passed by men while at stool. Their usual position of standing in making water, in this country, exposes the heavier parts of the contents of the bladder, to the risk of being retained in it.

Of course, every one suffering from such an affection, will at once seek professional assistance. But we would warn those who, ignorant of the advantage of taking such things in time, resort to empirical remedies, that the best medicine for one case may be the worst possible for another. This will be the more evident, when we state, that gravel in one case may result from an excess of alkali in the urine, and in another from an excess of acid.

We might also refer to another of the affections of the urinary apparatus, which is, unfortunately, a source of much misery, and frequently of premature death, namely, stricture in the urethra; a disease which happily does not affect females. Of course, we cannot enter into the professional treatment of such diseases. But we may warn the inconsiderate, to avoid the cause of a disease which is attended with so much suffering and danger; and when afflicted with it, to trust themselves in the hands of none but professional men, who are above empiricism.

Perspiration, of all the natural evacuations, is the most important, and the most constantly in operation; and while it is essentially useful in freeing the system of a portion of the debris of the body, it answers a valuable purpose in regulating animal temperature.

We shall consider this subject under the following heads: 1. The nature of perspiration; 2. Proportion of perspiration to the other discharges; and, 3. General observations regarding this important function.

1. The cutaneous perspiration, and the watery exhalations from the lungs, are called the aqueous secretions. There seems to be a constant exhalation of watery, but invisible, vapour, going on from the skin of the human body; this however, when from any circumstance increased, collects on the

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* Ammonius, one of the surgeons of the Alexandrian School, in the time of the Ptolemies, " employed an instrument, by means of which he broke down stones in the bladder; another proof how much modern innovations are often mere renovations of obsolete practices, and of the truth of Solomon's apophthegm, that there is nothing new under the sun." Moir's Ancient History of Medicine, p. 101.

surface in drops. The one is called the insensible perspiration, the other the sensible; and they are believed not to differ from each other in their qualities; although there can be little doubt, that under particular circumstances of disease, or habit of body, the nature of the perspired matter may be materially altered.

For the discovery of the nature, importance, and extent of insensible perspiration, or what may be called the *static* system of medicine, we are indebted to the celebrated physician Sanctorius, of Padua, in Italy, (1614,) who, by the labour of thirty years, established the existence of this discharge, beyond the possibility of doubt; and whose doctrines have since been sanctioned by the experiments, and supported by the authority, of many able men *.

When the perspired matter collects in drops, it is known under the name of *sweat*. This substance appears on the surface of the body, after violent exercise, or under the influence of weakness, or in consequence of disease. When perspiration is carried to excess, by removing some of the nutritious particles of the blood, it may become a source of alarming weakness. Under ordinary circumstances however, it is of use, by discharging useless portions of the system. Chemists have ascertained, that, among the substances perspired, are water, carbon, muriate of soda, an oily matter, and acetic acid.

The nature of this discharge, is thus elegantly described by the Poet of Health:

> For thro' the small arterial mouths that pierce
> In endless millions the close-woven skin,
> The baser fluids, in a constant stream
> Escape, and viewless melt into the winds.
> While this eternal, this most copious waste
> Maintains its wonted measure, all the powers
> Of health befriend you, all the wheels of life
> With ease and pleasure move: but this restrained,
> Or more or less, so more or less you feel
> The functions labour;—from this fatal source
> What woes descend, is never to be sung †.

It has not yet been determined, what quantity of perspiration is necessary for the maintenance of health. Sanctorius says, that if the meat and drink of one day, amount to eight pounds, the perspiration usually discharges about five pounds, the urine about thirty-two ounces, and stools about four ounces.

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* We present, as interesting and curious, the accompanying plate of Sanctorius in his balance.

† Armstrong's Art of Preserving Health, book iii. line 256.

But this calculation was made for the climate of Italy *. In Britain, the quantity of perspiration is less; in tropical climates, more. But, in general, it may be stated, that a person of middle stature, and in perfect health, will perspire from three to four, and even five pounds weight, according to circumstances, within the period of twenty-four hours †.

Perspiration is promoted, 1. By certain alimentary substances, some being more sudorific than others. 2. Fermented liquors, are supposed to augment perspiration ‡. 3. Bodily exercise, walking in particular, is favourable to this secretion. 4. It is promoted by clothing adapted to the season of the year, and by regularly changing the clothes worn next to the person, which in hot climates must be done frequently, and even in cold ones once a-day. 5. Perspiration is much promoted by keeping the skin clean and moist. 6. Bathing in warm water tends to promote perspiration. 7. The cutaneous secretion, by the power which certain remedies possess of exciting it, may be rendered of great service in the treatment of disease. Lastly, Mental emotions have a material influence on perspiration.

Obstructed perspiration, on the other hand, may become a serious source of general derangement of the system. It usually arises from one or other of the following circumstances: 1. From moist and cold air. 2. From improper food; thus substances having a tendency to produce a febrile state of the body, become the cause of obstructed perspiration. Thus indigestible matters may produce this inconvenience. 3. From neglect of exercise. 4. From want of cleanliness. 5. From scanty clothing. 6. From wet feet,—a source of many fatal disorders. 7. From exposure to night air. 8. From damp linen,—an evil to which too little attention is paid. 9. Damp houses; which may happen from their being improperly situated, from their being built of sea-stone, or from their being inhabited too early. 10. Damp rooms; attention to cleanliness often occasions the washing of rooms at a very unseasonable period, so that they are used before they are perfectly dry. 11. Sudden transitions from heat to cold §; frequent colds are caught in summer, by going from the burning rays of the sun into the cool shade; and the first cold weather of autumn is more sen-

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* Robertson's Dissertation on the Food and Discharges of Human Bodies, Pref. p. 4.

† Ibid. p. 87.

‡ Le Medecin des Hommes, p. 121.

§ Sanctorius advises us, very carefully to avoid the deceitful pleasure of suddenly cooling the body, when heated by air or exercise.

sibly felt, because we are then unaccustomed to a low temperature. Lastly, any thing that produces a feverish state of the system *.

2. In order to exhibit the very great importance of this discharge, it may be proper to give the following abstract of a very curious statical table, drawn up by Dr Robinson, of the experiments which he tried for eight months, commencing in April and ending in November, in the forty-second year of his age. These experiments ascertain the medium proportion of the three discharges, in so far as the experience of one individual can be depended upon.

		Ounces.
Mean quantity of food per day,		86.31
	Ounces.	
Mean quantity of stool,	5.54	
Mean quantity of urine,	34.91	
	40.45	
Mean quantity of perspiration,	45.86	
		86.31

Thus, it would appear, that a greater proportion of the food consumed, was discharged by the skin, than by stool and urine.

Sanctorius has proved, that robust persons discharge the remains of their nutriment chiefly by perspiration, the weak chiefly by the kidneys or bowels; but that in some states of great weakness, the greater part of the aliment passes off in the shape of undigested chyle †.

3. We shall conclude with a few general observations regarding this important subject.

Some contend, that too much stress is laid upon perspiration. The quantity of it being so very variable, while it is so liable to be checked by accidents, they hold that if life depended upon its being equal, we should not enjoy health for a single day. The importance of perspiration however, may be judged of from our own feelings. Irregularities, in this secretion, produce peevishness of temper, headachs, disturbed sleep‡, heaviness in the limbs, &c.; whereas we never find ourselves more lively and vigorous, nor are our health and spirits in a better state, than when the function of the skin is duly performed *.

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* Fothergill's Rules for Preservation of Health, p. 87.

† Adair's Medical Cautions, p. 180.

‡ Restlessness in bed, is often owing to the air in the bed, or under the clothes, being saturated with perspired matter. To prove this, let a person keep his position in the bed, but throw off the bed-clothes, and expose the body to fresh air. Evaporation from the surface of his body will produce immediate relief. See Franklin's Essays.

It has been observed, that one perspires less when the stomach is empty; hence those who eat twice or thrice a-day, perspire more than those who eat but once.

There is no better mode of preserving an equal perspiration, than to accustom ourselves, from early youth, to the vicissitudes of heat and cold. This may be effected by walking every day in the open air, and washing the body with tepid, or still better, with cold water, which braces the pores, and renders us indifferent to change of weather, and of the seasons.

The exudation by the pores of the skin is most regular during the night, when the sleep is sound and refreshing. The nocturnal perspiration is rendered copious, by the greater uniformity of the surrounding atmosphere, and by the more regular warmth to which the body is then subjected. It is extremely unwholesome however, to lie in bed too long, as that weakens the fibres, and promotes too abundant a perspiration. Sleeping on feather-beds, or too much covering with bedclothes, ought also to be avoided, as being apt to occasion weakening perspiration.

The young perspire a great deal more than the old. It would appear, that the texture of the skin, as life advances, becomes closer and more shrivelled, and less fit for the passage of any substance through its pores; or it may be, that the cutaneous secretion becomes of a grosser nature. It is on this account, that old people have such a quantity of defluxion secreted in the air passages, which they get rid off by the mouth †. This defluxion always abounds most in the winter season, when perspiration diminishes.

To encourage perspiration, and to prevent an injurious load of defluxion, old people ought to keep themselves warm, to drink a little wine, to use moderate exercise, and to change their linen often. Warm bathing also, is of use to the aged, from its tendency to promote perspiration. It is to be remembered, that insensible perspiration takes place not only from the surface of the body by the pores of the skin, but also that a great quantity of watery vapour is discharged from the lungs; and that the kidneys, the skin, and the lungs are to be consi-

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* Willich's Lectures on Diet and Regimen, p. 522.

† Le Medecin des Hommes, p. 119; also, Experiences de M. de Sault sur la Transpiration.

dered as cooperating in one common function, viz. discharging an excrementitious fluid; so that if the discharge from one of those emunctories be checked, a greater task is thrown upon one or both of the others; and hence disease is occasioned in them. What is more familiar than the smallness of the quantity of urine collected when we sleep, compared with what is discharged during the day, or when we are exposed to cold air? How common are colds and other disorders of the lungs from obstructed perspiration?

General Result.—The food which we take, is at first divided into two parts; 1. The earthy and grosser particles, which are discharged by stool; and, 2. Particles which are absorbed, and added to the mass of circulating fluids. The latter part is applied, 1. To the purposes of nutrition; and having answered these purposes, it is, 2. Discharged from the body by the emunctories of the system. By these processes, the body is not materially altered in the twenty-four hours.

SECT. V.—*Means of promoting Digestion.*

If life depend on the due performance of the function of the lungs, health is no less dependent on the processes of digestion and assimilation. This section therefore, must be regarded as of great importance with reference to one of the main objects of this work, namely, the preservation of health. But after what has been said on the digestibility of each particular article of food of which we have treated, little more remains, than to give a few practical hints on the medical treatment of the constitution, so as to preserve *good digestive organs;* and on the best means to be pursued by those having *delicate* or *weakly stomachs.*

Indigestion, in nine cases out of ten, has its source in the earliest periods of life. And it is well worthy of being pressed upon the attention of those persons, who are apt to gratify their own kindly feelings, at the expense of a child's stomach, that they could scarcely do more injury by administering ardent spirits, than by giving sweetmeats to a child.

It is of infinite importance, that the stomach should be as much as possible saved from injury in infancy; and in this respect, the good which a little self-denial on the part of those having charge of children will accomplish, is very wonderful, particularly in those cases in which it is perhaps most difficult to refrain from gratifying a child, namely, where the infant is delicate, and has little appetite for ordinary food. In all such cases the mother, and those interested in the child, would do well to compare the insignificance of a momentary gratification to themselves or to the child, with the permanent blessing of healthy digestive organs; which, but for such early indulgence, might have carried the object of their solicitude through a long life.

Every one ought as soon as possible to become acquainted with those alimentary substances which disagree with his constitution; and in youth and manhood these should be avoided. As age creeps on, the rule should be, to eat those things only which agree with the stomach, the ascertainment of which should not be difficult with those, who, in the earlier periods of life, have paid even that ordinary attention to the state of their stomach, which that organ in most cases takes active means to enforce. Hence the saying, that *A man is either a fool or a physician at forty*, if restricted to the individual's knowledge of what, in ordinary circumstances, is good for him, is literally true, since at that time of life, a man must either be a fool indeed, or a slavish sensualist, (which is perhaps worse), if he have not a pretty correct notion not only of those articles of diet which are best adapted to his constitution, but, if having such knowledge, he cannot save himself from almost all the minor derangements of the digestive organs.

Keeping these general observations in view, we shall now throw into the form of maxims, the dietetic rules, which our own experience, and that of others seems to point out, as the best means of preserving the health of the alimentary canal.

Dietetic Maxims.

1. The nature of food should in a great degree depend on the occupation of the individual. The diet of persons in robust health, and engaged in laborious occupations, should be nutritive, but slow of digestion. That of the idle and the indolent should contain little nourishment in comparison with its bulk. That of the weakly and the invalid should be nourishing and of easy digestion.

2. Animal food is more easy of digestion than vegetable, but it is more stimulating.

3. Salted and dried meat is nourishing, but not easily digested.

4. Food from the vegetable kingdom, though slow of digestion, is nourishing and useful to the system.

5. Fish contains less nutriment than a similar quantity of animal food, but is in general digestible and wholesome.

6. Soups and jellies, although they hold in solution certain

of the nourishing ingredients of animal meat, are far from being nutritive, and require, in order to render them wholesome, to have farinaceous substances consumed along with them.

7. Roasting, by dissipating less of the nutritive qualities of meat, leaves it in a more nourishing condition than when boiled, although heavier.

8. Meat is rendered more tender and digestible by boiling, although in this process a considerable portion of its nutritive qualities is extracted.

9. Animal food should not be overdone in cooking, as it is thus rendered less digestible. Vegetables should be made tender by dressing.

10. The food should be completely masticated in eating.

11. The mixture of a variety of articles of diet at one meal is highly objectionable.

12. Satiety at meals should be avoided.

13. Condiments in moderation are a useful addition to food.

14. Breakfast should consist principally of liquid food; dinner should be substantial; and tea, taken two or three hours after dinner, ought not to be accompanied by any great addition of solid food.

15. The interval between breakfast and dinner ought not to exceed seven hours; and if, from circumstances, a longer period should necessarily intervene, a slight luncheon should be partaken of about mid-day.

16. Those living according to the present custom of society in the higher ranks, should not take supper.

17. Table beer is the best drink for dinner, and if stronger liquor be used, it should be taken principally during the meal. A quantity of cold wine after dinner will sooner or later prove injurious.

18. Exercise and active employments may be with safety commenced immediately after breakfast, but some quiet is required after the principal meal of the day.

19. Dinner should not be taken when the body is suffering from lassitude, immediately consequent on extreme fatigue. A period of rest therefore, should be allowed to intervene between severe exercise and the principal meal of the day.

20. The cares of the world should be as much as possible forgotten at the dinner table. Those suffering from distress of mind, should take only light and digestible food; and may assist the stomach with a little more than usual, of wine or other stimulating liquid.

21. A fit of indigestion is apt to be produced, if the dinner be interrupted by interesting business. Those therefore, engaged in professional pursuits, should prohibit their servants from communicating any thing, likely to call them from the dinner table, while the substantial part of the meal is going on.

Lastly, no dietetic rule is of more importance, than to avoid adding to the contents of the stomach, while a previous meal remains undisposed of by that organ.

2. The treatment of dyspeptic diseases embraces the most extensive branch of therapeutics, and is to be regarded as purely of a professional nature *. Nothing therefore, can be less advisable, than for the author of a popular work like the present, to attempt to lay down rules for the treatment of the diseases of the stomach, or to suggest medicines for general use, which are calculated for particular cases. The maxims we have just given, will be found, if properly modified, useful to those having even the most delicate stomachs; and we would only suggest farther, that where symptoms of disease are present, there should be no attempt on the part of the sufferer to treat the case without professional aid. We have however, introduced in the Appendix, some prescriptions and observations on medicines, commonly resorted to by the dyspeptic, which, when better advice cannot be had, may be found useful.

We would only add, for the benefit of the dyspeptic, that attention to the bowels, is one of the principal means of keeping the stomach in order; that the function of the skin should be carefully attended to, by washing, bathing, and proper clothing; that it is of the greatest consequence, that the feet should be kept clean and warm; that the bed should not be too much indulged in, nor much bed-clothing used; that regularity of meals, and of sleeping hours, should be most punctually attended to; and, lastly, that every endeavour should be made to keep the mind cheerful, and the temper cool; for which purpose, perhaps nothing is better calculated than occasional change of climate, and travelling.

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* *Dyspeptic* diseases are those connected with the digestive organs :—therapeutics implies the art of curing disease.

CHAP. V.

ON EXERCISE.

From the commencement of life, there is an instinctive desire in the human being, as in almost every other animal, to engage in active exercise. The infant while awake is only pacified by being kept in motion; as soon as it is able to use its own limbs, it seems to be in a state of constant activity. In youth the same disposition to active employment prevails, and in manhood we soon become aware that exercise is a most important means of preserving health *, and of increasing the enjoyments of life. But although instinct and experience prove to us that exercise is indispensable towards the preservation of health, it is more difficult to explain in what way it produces good effects. Fortunately however, the fact is all that we have to deal with here; and it is very certain that exercise, or, in other words, labour, is necessary to the human being, and that it not only confers upon him the blessings of health and strength both mental and bodily, but enables him to procure subsistence, and to increase in every way the enjoyments of life †.

Exercise under due regulation, seems to increase considerably the powers of the body, and in a particular manner to assist the digestive organs. It is highly probable, that it accomplishes this end by its effect on the circulation of the blood, by forwarding which it promotes the system of building up and removal, which is constantly going on in the body, and consequently finds a use for the material which the digestive organs are engaged in producing. Thus the emunctories of the system are called into greater activity, and the effete matters more rapidly discharged from the body ‡.

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* "When I consider the physical structure of man," said the great Frederick, "it appears to me, as if nature had formed us, rather to be postillions, than sedentary men of letters." And, though this expression be strong, it is not without some foundation.—*Hufeland's Art of prolonging Life,* vol. ii. p. 206.

† So much convinced was the celebrated Cyrus, that exercise was essential to health, that he established it as a rule among the Persians, to whose education and health he paid such particular attention, "that they should never eat but after labour."

‡ The health of all the parts, and the soundness of their structure, depend

The effect produced by exercise, cannot be better exhibited than in the increase of size and strength, which result from the constant use of a limb *.

But it is not to the body alone that exercise proves beneficial. Exercise under due management is of great use to the mental faculties. It is therefore of the utmost consequence to a person whose mind is kept constantly on the stretch, that, as much as possible, he should give his body the benefit of regular exercise in the open air.

It is unnecessary to enlarge here on the blessings which the desire for exercise produces in leading man to labour for his food. It must indeed be evident to every one, that a willingness, or rather a desire to labour, is necessarily a constituent part of our mental formation. And had it not gone beyond the mere desire to obtain the necessaries of life, man would have differed little from the brute creation, and we should have remained ignorant of all the advantages of civilization.

The subject of exercise properly divides itself into two great heads,—labour rendered necessary for procuring food,—and exercise taken to maintain health. We have little to do here with the first of these heads; but it is necessary that we should consider pretty fully that description of exercise which may be called *voluntary labour*, of which we shall briefly treat under the following heads: 1. The various sorts of exercise; 2. The advantage of exercise in preventing or curing disease; and, 3. The rules to be observed regarding it, in reference to time, place, quantity, age, sickness, and various miscellaneous particulars.

SECT. I.—*Of the various Sorts of Exercise.*

EXERCISES are usually divided into three sorts, the active, the passive, and the mixed. We prefer however, arranging them under the following heads: 1. The youthful; 2. The

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on perpetual absorption, and perpetual renovation; and exercise, by promoting at once absorption and secretion, promotes life, without hurrying it; renovates all the parts and organs, and preserves them apt and fit for every office they have to perform.

* Lord Bacon sums up the benefits arising from exercise in the following words: *First*, That it sendeth nourishment into the parts more forcibly. *Secondly*, That it helpeth to excern by sweat, and so maketh the parts assimilate the more perfectly. *Thirdly*, That it maketh the substance of the body more solid and compact, and less apt to be consumed and depredated by the spirits.

manly; 3. The gymnastic; and, 4. The mixed;—it being impossible to make the usual arrangement satisfactory *.

1. *Youthful Exercises.*

The tendency of exercise during infancy and youth, is to promote the growth, and strength of the body, and to render the senses, both external and internal, more acute. The games and diversions of children therefore, as Locke has well observed, should be directed towards good and useful habits, and towards the prevention of bad ones. Nature has implanted in young persons, an earnest desire to romp, to run, to wrestle, and to follow other bodily exercises that require activity; so that sitting, or being confined, is the greatest punishment a child can suffer. This is a wise provision of nature; for thereby the joints are rendered strong and pliable.

Exercise is much more necessary for children than attention to the mental branches of education. It is astonishing how many perish by what Salzmann very properly calls "*the disease of education.*"

According to Rousseau, the grand secret of education is, to contrive that the exercises of the body, and those of the mind, may always serve as relaxations to each other.

The exercises of youth should forward the circulation of the blood, and strengthen the joints and muscles; they should expose the body to the weather and the elements, and should render it adroit and agile; they should exalt the courage, inspire presence of mind, and promote activity; and by them, not only should personal strength, and mental energy, be produced, but they should also prove the source of beauty of form †.

Infantine and Childish Exercises.—Many of the pastimes and exercises to be mentioned in the following pages, as belonging to youth, and even manhood, are copied by the younger part of the community, and in some degree become the sports of children.

Hopping, though a very simple exercise, is amongst the most violent; but it is a very useful one, and serves particularly to strengthen the lower limbs. In England, it was not unusual, in the sixteenth century, to have *hopping matches*, and to give prizes to those who distinguished themselves in this species of exercise.

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* Thus, using a carriage is called passive exercise; but driving a phaeton is an active one. Friction is said to be a passive exercise; but many use their own flesh-brush, and thus render it active.

† Salzmann's Gymnastics for Youth, p. 187. This author observes, that, by that forcible respiration which exercise produces, straitness of chest, which is so injurious to the lungs, may be prevented.

Running.—Perhaps there is no surer means of strengthening the lungs of the youthful than this active exercise. Running gives employment to almost every muscle in the body, and every encouragement should be held out to young people, to engage in amusements which call for this exertion *. Running was formerly considered as an essential part of the education of a young man of rank †; and it is certainly well calculated for the young and active in general; it ought not, however, to be carried to excess ‡.

Driving or trundling a hoop, with a short stick, so as to keep it in motion, is a pleasant incentive to running, and well adapted for spacious level grounds. This is a classical exercise, and was as common with the Greeks and Romans, as it now is in many modern nations.

Throwing strengthens the hand, the arm, the shoulder, and the pectoral muscles; and when combined with aiming at a mark, it assists the eye, in forming a judgment of distances.

Lifting and carrying Weights, are exercises which require great prudence and caution. Lifting a weight with extended arms, fixed on a long staff, with notches at regular intervals, is however, recommended by Salzmann. He also observes, that young persons with high shoulders and short necks, may have those defects in some measure remedied, by carrying in their hands, with their arms hanging down, burdens of more or less weight, for a certain time every day.

Balancing.—If we endeavour to preserve the equilibrium of our own bodies, upon a narrow surface, or to balance with our hand any thing that is in danger of falling, we shall find prompt, judicious, adroit movements, and bendings of the body necessary. By practising this art, presence of mind, and justness of eye, are essentially promoted.

Climbing.—To strengthen the body, to fortify the courage, and to increase the truly useful capacity for escaping from various dangers, climbing is one of the most advantageous exercises in which boys can be instructed; and it is indispensably necessary for seamen *. The climbing of trees and walls, greatly tends to promote bodily agility; and youth are thus familiarised with various dangers, not always to be avoided in common life.

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* Running up and down stairs, is an active and useful exercise; it is recommended by Swift. It is hardly to be credited how strengthening it is, and how expert at it young people become by practice.

† There was a game, formerly much practised in some parts of England, called *base* or *bars*, and sometimes *prisoner's bars*, where the success of the pastime depended much upon the agility of the candidates, and their skill in running. Strutt has described this pastime; but his description is too long and complicated, to be inserted in this work.—See Strutt, p. 61.

‡ Turnbull's Medical Works, p. 120. Running, by shaking the bowels, is nearly as beneficial as riding, but is a more violent exercise.

Skipping with ropes is a most beneficial exercise, particularly in the winter season; and, if regularly persevered in, effectually prevents chilblains.

Sliding upon the ice appears to have been a favourite pastime among the youth of this country, in former times; at present, the use of skates is so general throughout the kingdom, that sliding is but little practised, except by children.

Skating.—This is by no means a recent pastime. It was certainly known in England in the thirteenth century; but is of still older date in the more northern countries, where it was a boast of their chieftains, that they could traverse the snow upon skates of wood. Too much cannot be said in favour of this elegant and healthy exercise, which is so well adapted for youth †.

Swinging is commonly considered a childish sport; yet swinging machines are certainly useful, where the state of health requires an uniform and gentle motion of the whole body, in the open air. Dr Smith, in his Essay on Pulmonary Consumption, recommends swinging as excellent in that disease. He observed, that it renders the pulse slower; and the same remark has been made by other physicians, in particular by Currie and Ewart ‡.

A machine, for the purpose of swinging out of doors, is common at fairs; and a good mechanic might invent a domestic machine, on the same principle as the *petaurus*, or great swing of the ancients ||, which might be of the greatest service to people in a delicate state of health, and who are unable to take more active exercise.

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* It is said, that a quack in London got a great deal of money, by persuading many people that he could cure them of the gout *by exercise*; and the exercise which he compelled them to try, was nothing but climbing up a ladder, and getting down again.

† Salzmann observes, that there is nothing in gymnastics that displays so much elegance as this exercise. Sometimes the skater, like a bird, sailing through the air, with wing unmoved, glides along, as if impelled by mere volition; at other times, gracefully wheeling, in all the intricate curves which fancy can conceive, he wantons securely upon that slippery surface, which the unpractised foot dares hardly tread upon; and at other times, he glides along with a rapidity and ease which astonishes the beholder.

‡ On this subject, see Darwin's Zoonomia, vol. ii. p. 282.

|| Puller's Medicina Gymnastica, p. 262.

There are various games played with balls, by individuals at every age; as tennis, cricket, golf, the hand-ball, fives, &c. These are active and healthful exercises, and peculiarly well calculated for young people *.

Another exercise of this kind may be here mentioned, which is played with a wind-ball. By this pastime, a large ball made of double leather, is driven to and fro, by a round hollow bracer of wood. It is usually practised in the open fields; and is much commended for the healthiness of the exercise it affords.

Dancing was much celebrated by the ancients. They said it was invented by the goddess Rhea; and it has been approved of by the greatest men of all ages. Even Socrates, was not only a professed admirer of this exercise in others, but learned it himself when he was an old man; and Cowley's observation seems to be well founded, that so much of dancing at least, as belongs to the behaviour, and proper carriage of the body, is extremely useful, if not absolutely necessary †.

In the middle ages, dancing was reckoned among the elegant accomplishments, necessary to be acquired by both sexes; and in the romances of those days, the character of a hero was incomplete, *unless he danced excellently* ‡.

Locke himself thinks, that children ought to be taught to dance as soon as they are capable of learning it. Nothing, he observes, contributes so much to a becoming confidence and behaviour, or raises them sooner to the conversation of those above their age; for though dancing consists merely in outward gracefulness of motion, yet it gives children manly thoughts, and a proper carriage §.

On the whole, exercise of some sort or another, (and the more active the better), is essential for youth; and a foundation should then be laid, of acquiring that taste for action, which must preserve and improve our bodily and mental powers, at every future period of life.

2. *Manly Exercises.*

Among the manly exercises may be included, 1. Tennis; 2. Cricket; 3. Golf; 4. Shinty; 5. Swimming; 6. Rowing;

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* The Greeks and Romans had four sorts of game with balls: 1. The *follis*; 2. The *trigonalis*, which, it is said, resembled tennis; 3. The *paganica*, or common village-ball; and, 4. The *barpartium*, similar to the hand-ball or fives.—*Mackenzie's Hist. of Health*, p. 138, note.

† See the Spectator, No. 67.

‡ Strutt's Plays and Pastimes, p. 220.

§ Locke's Treatise on Education, § 67.

7. Angling; 8. Hunting; and, 9. Agriculture. Some of these are practised in youth, but they are likewise continued in more advanced years.

Tennis.—This species of exercise resembles in many respects, the game which Galen so much extols, under the name of *the small ball.* It possesses the advantage of amusing the mind, and exercising the body at the same time. It is said to have originated in France, and was anciently in the highest repute, not only as a healthy exercise, but as one well calculated for the higher orders, and even becoming in a prince.

Cricket.—This is a well-known game. There was, of old, a pastime called *club-ball,* played by two persons, from which Strutt imagines cricket originated. Cricket is an active and a manly game, and merits the countenance which it receives from many persons of rank and property in this country.

Golf.—Probably one of the most ancient of the games played with a club or bat, is the pastime now distinguished by the name of golf or goff. It is much practised in Scotland, where it is played to great perfection; and a taste for it is kept up by the institution of societies for this special purpose *. It is a diversion well calculated for exercising the body, and one that may always be taken in such moderation, as neither to overheat nor fatigue. It has, in that respect, the preference over cricket, tennis, and other games, which cannot be played without violent exertion.

It is of the utmost consequence that the old established games of a country should be maintained, and it is therefore highly creditable to the young gentlemen of Scotland, of the present day, that they encourage the ancient Scottish games. It will generally be found, that the game which custom has rendered national, is well adapted for the climate in which it prevails. This cannot be better proved than by the prevalence of golf in Scotland. In this game, the players are under constant but moderate exercise; they are not liable to be over heated, but they are as little exposed to be chilled. Golf, therefore, is much better calculated for our variable climate than cricket. The cricket player is alternately in the most violent exercise, and in a state of perfect rest. A person thus exposed, under a hot sun and a bitter cold wind, is in circumstances, of all others, most likely to predispose to inflammatory diseases.

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* In the reign of Edward III. the Latin name *cambuca* (it is curious that the Gaelic name of the shinty stick is *cammac,*) was applied to this pastime. The game of shinty is called in England *bandy-ball,* from the club or bat with which it is played being bent or crooked. Golf is said to have originated in the Roman game called *paganica,* which was played with a ball of leather, stuffed with feathers.—*Strutt's Sports and Pastimes,* p. 80. There is a particular account of the Dutch game called *kolf,* drawn up by the Reverend Mr Walker, in the Statistical Account of Scotland, vol. xvi. p. 28. The Scotch golf is played in a common, or waste, by driving two small balls, (one for each party,) with proper clubs, to very distant holes in the ground, each three or four inches deep, and about the same in diameter; and the party (for several may be engaged on each side), whose ball is driven into the hole with the fewest blows, gains the game. Amongst other means of exciting attention to this exercise, a silver club is usually played for annually, and remains in the possession of the victor, until he is deprived of it by a better player in a succeeding competition; each winner successively appends a medal to it. It is a curious fact, that several old statutes, which do not appear ever to have been repealed, and which were passed during the reigns of James IV. and V., declare golf to be an illegal, because a useless game, and recommend archery instead.

The Shinty.—This is another favourite Scotch game, but it is of a nature more active and violent, and less scientific than golf. Shinty is played with a crooked stick or club, and a ball of wood, or of hard wound worsted covered with leather, which is driven from one boundary to another by opposing parties. Formerly parishes or smaller districts, contended with each other in this game, but it is now principally confined to youth. The game of hockey in England is played with similar instruments.

Swimming.—When bathing is accompanied by the exercise of swimming, it is doubly beneficial. The power of swimming is a natural and useful faculty, bestowed upon every animal, because all animals are exposed to the danger of falling into an element so generally abundant as water; and although the form of man seems not so well calculated for swimming, at least with his face to the water, as is that of the quadruped, still every person may learn to swim with a little self-confidence and practice. Swimming is highly favourable to activity, as well as to cleanliness; and, by learning this art, a person may not only be enabled to save his own life, but may be the means of rescuing a fellow-creature from a watery grave. The Athenians considered swimming of such importance, that when they wished to express contempt of the knowledge of any one, they said, that he could neither read nor swim *.

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* The reproach in Latin was, "*nec literas didicit, nec natare.*" See Locke's Treatise on Education, § 8; and Salzmann's Gymnastics for Youth, p. 339. Dr Franklin has written an essay upon the art of swimming, which, he says, is one of the most healthy and agreeable exercises in the world. He asserts, that after having swam for an hour or two in the evening, one sleeps coolly through the whole night, even during the most ardent heat of summer. In regard to swimming, he adds a singular suggestion, that of aiding the swimmer by a paper kite, by means of which, he thought it not impossible to cross from Dover to Calais; though he admits that a packet boat is preferable. Some late men of genius were very enthusiastic in their admiration of swimming, of which Lord Byron is an example. See Moore's Byron.

Bathing in salt water is particularly to be recommended, being not only of use as an exercise, but as being the means of preventing, or of curing various disorders *.

Although, no doubt, swimming may, under particular circumstances, prove useful, there is reason to believe that more swimmers are drowned than such as are ignorant of this art; and although nothing is more praiseworthy than the attempt to save a fellow-creature from drowning, still it is one which may cost the best swimmer his life; as the instinctive efforts of a drowning person to save himself, may completely trammel his friend, and thus lead to the destruction of both. However paradoxical therefore it may appear, it is very certain, that the more nearly a person is to being drowned, or, in other words, the more powerless he has become, the more likely is a friend to save him.

Rowing.—This exercise strengthens the arms, and the upper parts of the body, and is good for the lungs. Both the Britons and Saxons were expert in the management of the oar, and thought it by no means derogatory for a nobleman of the highest rank to row or steer a boat with dexterity and judgment †. It says much in favour of the healthfulness of rowing, that the watermen on the Thames, though so much exposed to wet and cold, hardly ever have rheumatism.

Angling.—This, though not a very active, is, on the whole, a healthy exercise. It amuses the mind, and gently exercises the body; and, above all, is useful to the lungs, as the air above running streams is almost always pure. It is remarked, that those employed in catching salmon in rivers, are remarkably healthy. There are however, some objections on the score of health to angling, as the sportsman is almost invariably led to expose himself to the danger likely to result from wet clothes. It is curious, that in the present day, some of our London philosophers and men of science, are devoted to this sport, and the late Sir Humphry Davy has written an excellent work on the subject.

Hunting, of all the active exercises, seems to be the most enticing to those who have once fairly engaged in it, and it is not an uncommon source of ruinous expense to country gentlemen. Although, no doubt, a most healthful exercise, it is scarcely creditable to a gentleman of a liberal education, to give up the whole of his time to horses and dogs. Huntsmen, and those who gain their livelihood by such occupations, have a good excuse for such a waste of time; but it is a disgraceful substitute for the important duties of a landed proprietor *.

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* Locke's Treatise on Education, § 8.

† Strutt's Sports and Pastimes, p. 69.

Agriculture.—Rousseau insists upon it, that every youth should learn a trade, which he calls *an estate for life*, because, whatever befals him, he will thus be able to earn a livelihood. Many trades have been recommended for that purpose, as the smith's, the carpenter's, the mason's, the turner's, the bookbinder's, the basket-maker's, &c. But the time which is required to learn those arts, (for which, in general, an apprenticeship is thought necessary), and the improper persons with whom a young man might be led to associate, during his apprenticeship, render such projects for the higher classes absurd. There are two arts however, that of the gardener †, and of the husbandman, which cannot be too strongly recommended. They are the most useful, and the most essential of any. They are well calculated for enlarged and liberal minds. They are interesting, from the variety of the objects connected with them; and in regard to health, they are superior to every other ‡.

These observations are applicable to almost every well educated person; but more especially to those possessed of landed property, or who are likely to live in the country. To them, agricultural pursuits may furnish by far the most wholesome exercise, the most amusing to the individual, and the most useful to the state. The records of antiquity are full of instances of the greatest warriors and statesmen being devoted to husbandry; and a zeal for agriculture is fortunately a distinguishing characteristic of the present age.

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* A celebrated poet, (Dryden), seems to consider this as the best, at least the healthiest mode of obtaining subsistence. He observes,

> By chase our long-liv'd fathers earn'd their food,
> Toil strung their nerves, and purify'd their blood;
> But we, their sons, a pamper'd race of men,
> Are dwindled down to threescore years and ten.
> Better to hunt in fields, for health unbought,
> Than fee the doctor for a nauseous draught.

† Salzmann makes the following observations regarding the propriety of teaching gardening to young people: "The occupation of a gardener I would strongly recommend, as well adapted to children. Every boy, where it is practicable, should employ part of his time in this pleasing occupation, which has a valuable tendency to expand the mind. It is a delightful sight, to see youth and innocence attached to nature and our original destination. Here plots are formed, and a piece of waste ground is gradually dug up, inclosed, planted, watered, and kept in order, by the exercise of juvenile powers; the important ideas of the production of something by our own exertion, the value of manual labour, and articles of food, are instilled into the mind; and the disappointment of pleasing hopes, compensated by fresh exertions, keeps the mind in activity, and teaches it to think lightly of the failure of its expectations."—*Salzmann's Gymnastics for Youth*, 432.

‡ The great increase of inhabitants in infant colonies, and the longevity of such as follow agriculture every where, evidently prove it to be the most healthful, as well as the most useful, of all employments.

Regarding manly exercises in general, it has been justly mentioned as a subject of regret, that these, and the gymnastic diversions and exercises to be afterwards described, are now so little practised. Such pastimes make people take more exercise than they would otherwise do, and are of the greatest service to those who are not under the necessity of labouring for their bread. As active diversions lose ground, those of a sedentary kind seem to prevail. Sedentary diversions are of no other use but to consume time. Instead of relieving the mind, they often require more thought than either study or business.

3. *Gymnastic Exercises.*

Gymnastic exercises were originally considered in a military point of view alone; but philosophers and physicians soon perceived that they were conducive to health and strength; that many ailments vanished in the midst of those various and complicated movements which they rendered necessary, and that these motions imparted energy to the most important functions of the body. They observed, that even convalescents, by adjusting the use of exercises to their strength, recovered expeditiously, even from long and painful maladies. Hence the gymnastic art became an object of public attention, as an important branch in the education of youth, and as materially contributing to the preservation and to the perfection of the human race †.

Herodicus, who instructed Hippocrates himself in the art of physic, being master of one of the *Grecian palæstræ*, or *gymnasia*, observed, we are told, that the youths under his care, were in general very healthy and strong. This he ascribed to their exercises; and following out this idea, he established these exercises as a means of preserving or recovering health, and formed certain rules for that purpose, which however, have been lost for many ages. But they were once in great esteem; and Herodicus may be accounted, if not the inventor, at least the first great improver of so useful an art *.

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* Locke's Treatise on Education, § 204.

† Hygiëne, by Hallé. See Code of Health, 2d edit. vol. iii. p. 290.

The ancients in general, had so high an opinion of gymnastics, that Plato and Aristotle, and other great authorities, considered a commonwealth as defective, in which they were neglected; and they reasoned thus: As the improvement of the *mind*, which ought to be our constant aim, cannot be accomplished without the aid of the *body*, is it not incumbent on us to promote the health and strength of the body, that it may be capable of serving the mind, and of assisting, instead of impeding, its operations? Hence Plato, in Protagoras, calls him *a cripple*, who, cultivating his mind alone, suffered his body to languish through inactivity and sloth †.

The ancients originally admitted only of five gymnastic exercises,—leaping, running, throwing the discus, darting the javelin, and wrestling; afterwards boxing, and probably other exercises were added; but the name of *pentathlon*, or the five games, was retained ‡.

Taking a wider range, we shall consider gymnastic exercises, (including those of a military nature), under the following general heads: 1. Leaping; 2. Foot racing; 3. Hurling; 4. Wrestling; 5. Boxing; 6. Cudgelling; 7. Fencing; 8. Archery; and, 9. Modern military exercises §.

Leaping.—This ranks among the first of the gymnastic exercises; it strengthens, and gives elasticity to the feet, legs, knees, thighs, and indeed the whole frame; it braces every muscle, heightens the courage, improves the faculty of measuring distances by the eye, and gradually imparts such a command over the balance of the body, as tends greatly to secure us from dangerous falls ||.

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* Burton's Treatise on the Non-naturals, p. 245.

† Salzmann's Gymnastics for Youth, p. 113.

‡ Ibid. p. 193. The same author has given a review of gymnastic and manly exercises, classifying them according as they act upon the body in general, or particular parts of it; for instance, the shoulders, the chest, the lungs, the hands and arms, the spine and muscles of the back, the hips, the thighs and knees, the legs and feet, the organs of speech, &c.; and this classification must furnish useful hints to those who may be desirous to improve different parts of the body, or to remove any personal defects, by means of exercise. See Salzmann's Gymnastics for Youth, p. 413.

§ The author who has given the best account of the ancient gymnastic exercises, is West, in a Dissertation on the Olympic Games, prefixed to his translation of the Odes of Pindar. See also Potter's Antiquities, Book II. chap. 21. Mercurialis (Hier.) in his works, *de Arte Gymnastica*, has likewise given a very elaborate description of these exercises.

|| The exercise of leaping, among the ancients, was confined to distance, and did not extend to height. A Spartan is said to have lept fifty-two feet,

Foot racing.—This was one of the most celebrated branches of the gymnastic art in ancient times. Swiftness was reckoned one of the best endowments of which a man could be possessed: hence *swift of foot* was the constant epithet by which Homer distinguishes Achilles. Running must have been carried in ancient times to very great perfection; but the feats which have been performed in England, in that respect, seem to rival, if they do not surpass even those of ancient Greece. Some have run at the rate of ten miles an hour, even in sultry weather; four miles were run at York in twenty minutes and nineteen seconds. The famous West, of Windsor, could run forty miles in five hours and a half, which is nearly eight miles an hour; and in eighteen hours, he could have gone over one hundred statute miles *.

Hurling.—The inhabitants of the western counties of England have long been famous for their skill in the practice of an ancient exercise called *hurling.* Sometimes this game was carried on with so much spirit, that two or three or more parishes, agreed to *hurl* against a similar number of equal population, for the possession of a large ball, for the acquisition of which, the greatest exertions were made, for those who were ultimately in possession of it were accounted the victors.

4. *Wrestling.*—This was a very ancient exercise, and constituted the most important part of the Grecian system of gymnastics †. A triumph indeed, in wrestling was considered to be of such importance, that the victorious athleta has been received with the applause of a whole nation; and a breach made in the walls of his native town to introduce him in triumph ‡. It was formerly much practised in England; and the young nobility and gentry were regularly taught to wres-

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and a native of Crotona even fifty-five. The most famous leaper in modern times, was one Ireland, a native of Yorkshire. In the eighteenth year of his age, by a fair spring, without any assistance, trick, or deception, he leaped over nine horses, standing side by side, and a man seated on the middle horse. He also cleared a garter, held fourteen feet high; and, at another jump, he kicked a bladder, hanging sixteen feet from the ground.—*Strutt's Plays and Pastimes,* p. 176.

* A quarter of a mile has been run in a second or two under a minute, and the half mile in two minutes; one mile in a quarter of a minute under five minutes; two miles have been done under ten minutes; one hundred yards have been done under ten seconds.

† Theseus is reported to have been the first who reduced wrestling to a science. The combatants contended naked, but had their bodies rubbed over with oil, or some unctuous matter, and afterwards sprinkled with dust or sand. The victory was adjudged to him who gave his adversary three falls; or who compelled his opponent to yield the contest, when both were thrown upon the ground, by squeezing or breaking his fingers, &c.; this was called *Pancration.*

‡ Salzmann's Gymnastics for Youth, p. 247.

tle. In the ages of chivalry, to wrestle well was accounted one of the accomplishments which a warrior ought to possess *.

5. *Boxing.*—The art of boxing was much cultivated among the ancient Greeks; but the mode adopted at the Olympic games, was of a very serious, and indeed shocking nature. The combatants did not make use of their fists alone, but had their hands surrounded with thongs of leather, (the *cestus,*) which were often loaded with lead or iron. Armed in this manner, the combatants frequently killed each other, or were desperately mutilated †. In India there are a class of athletæ who are regularly educated for public exhibition, and are kept at the courts of native princes. They are taught wrestling and boxing, and they use a cestus, which is armed with buffalo horn, and is capable of giving very severe wounds.

Prize fighting has been at different times, more or less practised in England, according as it was sanctioned or discountenanced by fashion. Public exhibitions of boxing in this country lead to all kinds of profligacy and vice; and if their pretended good effects were multiplied a hundred fold, their brutalising tendency calls loudly for their discontinuance.

6. *Cudgelling.*—The quarter-staff or single-stick, as it is sometimes called, was formerly much used in England, more especially in the western parts of the kingdom. A native of Devonshire, with an English quarter-staff, is said to have fought three Spaniards with their swords and poniards ‡.

7. *Fencing.*—There is no exercise, with a view to health, better entitled to the attention of the higher classes of society, than that of fencing. The positions of the body in fencing, have, for their objects, erectness, firmness, and balance; and

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* In the Code of Health, 2d edit. vol. ii. App. p. 163, there is an account of a curious book on wrestling, written by Sir Thomas Parkyns, Bart. in which he describes the qualifications of wrestlers in the following terms: "They must be of a middle size, athletic, full-breasted, and broad shouldered, for wind and strength; brawny legged and armed, yet clean limbed. Terence's man, that has *Corpus solidum atq. succi plenum,* is my promising scholar, to do me credit, and be capable to serve his king and country on occasion, and defend his friend and self from insults."

† It appears, indeed, from the following epigram of Lucilius, that the consequences of these battles were sometimes very terrible, even though the combatants escaped with their lives.

On a Conqueror in the Cestus.

This victor, glorious in his *olive* wreath,
Had once *eyes, eyebrows, nose,* and *ears,* and *teeth*;
But turning *cestus champion,* to his cost,
These, and still worse, his heritage he lost.
For by his brother sued, disown'd, at last
Confronted with his picture, he was cast.

‡ Strutt's Sports and Pastimes, p. 198.

in practising that art, the chest, the neck, and the shoulders, are placed in positions the most beneficial to health. The various motions also, of the arms and limbs, whilst the body maintains its erect position, enable the muscles generally to acquire both bulk and tone; and in young people, the bones of the chest necessarily become more enlarged, by means of which pulmonary weakness may be avoided. Various instances might be adduced, where fencing has prevented consumption and other disorders. It has been remarked, that those who practise this art are, in general, remarkable for long life, and for the good health they enjoy *.

8. *Archery.*—Among the various military arts formerly practised in this kingdom, none was carried to greater perfection than archery. The English of old particularly excelled in the use of the bow; and they owed many victories to the strength and dexterity of their archers. In modern times, archery has become a source of elegant amusement; and in Scotland, it is at present particularly in vogue among the higher ranks of society, the King's Body Guard affording to the young gentlemen of the metropolis, an opportunity of displaying their knowledge of the science of archery, and exhibiting their persons in a splendid dress.

Every young gentleman should be drilled to the management of the musket and of the broad sword, a knowledge of which, may prove useful in time of need, and at any rate, the exercise improves the carriage, and strengthens the joints and muscles.

* * *

On the whole, it can hardly be doubted, that the sports and diversions of a people may be turned to the advantage of the nation; and that a wise and prudent government, may excite in the husbandman, the manufacturer, and the mechanic, as well as in the sailor and soldier, and persons in the higher ranks and professions of society, such an emulation, as may tend, not only to the preservation of health, but to promote agriculture and industry, to encourage trade, to improve the wisdom and knowledge of mankind, and to render a country happy in peace, and victorious in war.

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* See a very intelligent letter regarding fencing, by Henry Angelo, Esq. of Bolton-row, May-fair, London. Code of Health, 2d edit. vol. ii. Appendix, p. 165. Locke has the following observations on this subject: Fencing is a good exercise for the health, but dangerous to the life; those who have learned to use their swords, being apt to engage in quarrels, on the confidence they have in their own skill. This presumption makes them often more touchy than they ought to be, regarding points of honour, and fiery and violent on receiving slight or imaginary provocations; and young men are too apt to imagine, that they have in vain learned to fence, if they have never shown their skill and courage in a duel. Notwithstanding however, these objections, fencing is considered to be so necessary a qualification in the breeding of a gentleman, and has so many advantages in regard to health, and personal appearance, that every gentleman of rank and property, ought to acquire this art.—*Locke's Treatise on Education*, § 109.

6. *Healthful Exercises.*

The exercises taken for the purpose of promoting health, are either *external*, as, 1. Walking; 2. Riding; 3. Carriage exercise; 4. Sailing; 5. Boating; 6. Bowling; 7. Quoits. Or, *domestic*, as, 1. Billiards; 2. Shuttle-cock; 3. Dumb-bells; 4. Pensile-beds; 5. Declaiming.

External Healthful Exercises.

Walking.—There is no exercise more natural to us, or in every respect more conducive to health, than walking. It is the most complete of any in which the human body can be employed; for by it every limb is put in motion, and the circulation of the blood is effectually carried on, throughout the minutest veins and arteries of the system *. This salutary and most excellent exercise is, generally speaking, in the power of every body, and can be adapted, in degree and duration, to the various circumstances and wishes of each individual †.

Walking on a level, is not so useful an exercise as walking on undulated ground. By the latter, the lungs are more fully exercised, and the ascents and descents render the exercise more active, but the fatigue less. *Celsus* contends, that a straight walk is better than a winding one [*]; but surely it is less amusing. Walking against a high wind is very severe exercise, and is not to be recommended to invalids.

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* The following rules are recommended to the attention of those who are attached to this excellent species of exercise. 1. The most proper walk for health, is in a pure and dry air, and in rather an elevated situation, avoiding marshy and damp plains. 2. In the summer season, the walk ought to be taken either in the morning or evening, not during the middle of the day, unless shaded from the oppressive heat of the sun; in winter, the best period of the day is usually after breakfast, or from eleven to two. To read during a walk is an absurd and improper custom, highly detrimental to the eyes, while it destroys almost all the good effects of the exercise. 3. It is advisable, occasionally to change the place of exercise; for the same place, constantly gone over, becomes irksome and tedious, and affords no corresponding exercise to the mind. 4. We ought to accustom ourselves to a steady and active, but not to a violent or quick pace. 5. An agreeable companion contributes much to serenity of mind; but unless the mode of walking is similar, and the taste and character congenial, it is better to walk alone; as either the one or the other of the two companions must be subjected to some restraint.—*Willich's Lectures on Diet and Regimen*, p. 447.

† For the delicate and invalid, carriage exercise is preferable; horse exercise for the more hardy; but foot exercise is most convenient, for small is the proportion of mankind who can afford to use either a carriage or a horse.—*Adair's Essay on Diet and Regimen*, p. 62.—Both the body and the mind are enlivened by walking; and even when carried to an extreme, it has been found highly serviceable in nervous diseases.—*Turnbull's Medical Works*, p. 120.

As persons residing in large towns, and engaged in sedentary occupations, cannot take all the exercise abroad, which is necessary for their health, they ought, instead of sitting at desks or tables, to walk about as much as possible in their rooms, while transacting business. This rule is well worthy the attention of literary men. Though such a practice does not make up for the want of exercise abroad, yet it is a good substitute for it.

Riding.—No exercise has been more celebrated, as healthy to all, and more especially as being useful to invalids, than *riding on horseback;* and in general, it may be laid down as a rule, sanctioned by experience, "*That riding is the best exercise for regaining health, and walking for retaining it.*" Riding certainly strengthens, in a most effectual manner, the stomach and intestines; and to the hypochondriac, is an inestimable remedy [†]. It is less tiresome and laborious to the lower limbs than walking, so that persons in a weak state of health can use it with less pain or difficulty. The legs and feet are however apt to get stiff and cold in riding, which is relieved by some exercise on foot being afterwards taken.

To those whose business does not permit them to devote much of their time to exercise, riding is preferable to walking, more especially to the inhabitants of cities, as on horseback they may be speedily carried into fresh and salubrious air.

The exercise of riding was not recommended to invalids by the ancient physicians, probably because horses were not then so common; and because riding was not so conveniently managed in those times as now. The ancients rode without stirrups, which is extremely disagreeable and fatiguing to delicate persons; and hence only healthy and strong men could take that species of exercise [‡]. Even the modern Italians are so little addicted to horsemanship, that one of their proverbs is, "*a galloping horse is an open sepulchre* [§]."

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[*] See Grieve's Celsus, Book i. ch. 2. p. 25.

[†] The various airs through which a rider on horseback quickly passes, become, as it were, a succession of air-baths, by which the fibres are strengthened; and the various scenes and objects he is constantly observing, tend to amuse the mind.—*Lynch's Guide to Health*, p. 288.

[‡] Fuller's Medicina Gymnastica, p. 231.

[§] Fuller's Medicina Gymnastica, p. 234. They consider galloping to be

The following observations regarding riding, are submitted to the consideration of those who are fond of this useful exercise.

Riding is well suited to the healthy and the active; but it ought not to be much indulged in, until the bodily powers are nearly developed. If a youth be not remarkably strong and active, he ought not to be permitted to ride a spirited or a large horse, at least until he is twelve years of age. Every constitution cannot equally bear the fatigue of riding, especially in a rapid manner. It is the more necessary to be particular on this head, because rough exercise is the darling idol of the English; and youth, fired by examples from the Greek and Roman games, are apt to engage too much in manly sports, not equally safe to all *. Sanctorius says, that the amble is the most wholesome, and the trot the least so, of all the different riding paces. This can only be the case however, where the body is weak. In riding on horseback, and indeed in all violent exercises, much advantage will be derived from supporting the bowels by a broad belt, the pressure of which must be regulated by circumstances †. Dr Beddoes strongly recommends invalids to endeavour to keep the feet from getting chill on horseback. He therefore suggests the propriety of having a foot-warmer, water-bottle, or some such expedient, as a succedaneum, until the constitution supplies heat enough for itself ‡. Riding is of use to those who are troubled with the gravel, at least in a slight degree; but is inadmissible where there is a confirmed stone. When the mind is distressed by grief or vexation, riding will give a greater alacrity to the spirits than even wine itself §.

Carriage Exercise.—This is of various sorts; as in a close carriage, in an open carriage, or in a sedan chair. The two former of these elegant luxuries have become so common, that the inhabitants of great towns seem to be in some danger of losing the use of their limbs altogether, from never stirring abroad but in one or other of these vehicles ‖. It seems to be the fashion, to consider walking beneath the dignity of any one who can af-

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so desperate an achievement, that, at their races, the horses have no riders, lest their tumbling off should destroy the pleasure of the entertainment.

* Collingnon's Inquiry into the Structure of the Human Body, p. 19.

† Turnbull's Medical Works, p. 124.

‡ Manual of Health, p. 230.

§ See the Best Method of preserving Health, p. 143.

‖ Lolling in a carriage, unless a person is too weak to bear any other motion, only serves to destroy the benefit of a more effectual, and even more pleasant exercise of the limbs.—*Institutes of Health*, p. 22.

ford to be carried; and many sacrifice their health, in order to gratify their vanity, by shewing that they have a carriage *.

Conveyance in a carriage, is an useful exercise to invalids, or persons who are advanced in years, and cannot bear more violent motion; but at least one of the glasses ought to be kept open, that the perspiration and breath may not, by being pent up, vitiate the air †.

The use of open carriages is the most healthy fashion that has been introduced in modern times, and is, in some respects, almost as salutary as riding. There is indeed reason to believe, that, by the use of open carriages, people of rank will, in time, become much healthier, and more hardy, than formerly.

In regard to exercise in sedan chairs, it is well calculated for the weak and delicate, and for those who are deprived of the use of their limbs; and it is at the same time the best possible conveyance, in which a thinly clad lady can go from house to house, to evening parties.

Sailing.—There are few exercises which, in a maritime country, deserve more attention than sailing, more especially as it furnishes so effectual a cure for various disorders ‡. But its advantages in that, and in other respects, will be fully considered, when the subject of a change of residence is explained. (See Part II. Chap. III.)

Boating.—There is not in the whole list of exercises, any one more capable of giving strength to the arms and chest than rowing; and the management of the oar, is one of those accomplishments, with which every Briton at least should make himself acquainted.

Bowling.—This exercise is probably of ancient date. Bowling-greens are said to have originated in England, and were formerly to be found in most country towns of any note; while country mansions were not reckoned complete without them *. It is an unfortunate circumstance, that this mode of exercise is so much given up, as it is both healthy and amusing; and, being taken in the open air, is greatly preferable to any in-door exercise.

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* Buchan's Domestic Medicine, p. 77.

† "But we abound in absurdity and inconsistency. Thus, though it is generally agreed, that *taking the air* is a good thing, yet what caution against air! what stopping of crevices! what wrapping up in warm clothes! what shutting of doors and windows, even in the midst of summer! Many London families go out once a-day to take the air, three or four persons in a coach, one perhaps sick; these go three or four miles, or as many turns in Hyde Park, with the glasses both up, all breathing over and over again the same air they brought out of town with them in the coach, with the least change possible, and rendered worse and worse every moment; and this they call *taking the air!*"—*Dr Franklin's Letter to Dr Percival.*

‡ Sailing is a passive exercise, well suited to a state of disease, especially where the stomach and lungs are affected. It produces, at first, sickness and nausea, and occasions the stomach and adjacent organs to be completely unloaded; bilious complaints, therefore, are removed by it: and by its producing an increased discharge by the skin, it is no less useful in cases of consumption and spitting of blood, by lessening the determination to the lungs.—*Turnbull's Medical Works*, p. 12.

Quoits.—This is a game which is well calculated for a summer evening, uniting the advantages of moderate exercise to both the upper and lower limbs, and exposure to the open air.

Domestic Healthful Exercises.

Billiards.—In-door exercises ought only to be engaged in when, from the state of the weather, or other unfavourable circumstances, exercise in the open air is out of the question. At the same time, active amusements within doors, may be followed with great advantage by invalids, and are much to be preferred to sitting in idleness, from morning till night, in close apartments. Under such circumstances, the game of billiards is particularly useful, and is very properly a general favourite. The invention of this game is attributed to the French. It is an elegant species of amusement; admits of great variety; and a great deal of skill is required to be thoroughly master of it. In playing billiards, there is constant and even fatiguing exercise, in which both the upper and lower extremities are engaged; and the only objection to the game is, that it may become a source of gambling.

The Shuttle-cock.—This is a sport that has been long practised, being represented in a manuscript as far back as the fourteenth century, and probably is of Asiatic origin. It was a fashionable pastime among grown persons in the reign of James I. In a remedial point of view, this exercise is peculiarly beneficial to such invalids, as are prevented from leaving the house, but whose strength admits of pretty active amusements; for battle-door and shuttle-cock is the most active of the in-door games †.

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* Strutt's Plays and Pastimes, p. 199. In towns, open greens for bowling being exceptionable, from the difficulty of excluding improper company, and from their being exposed to the inclemency of the weather, covered bowling alleys were invented; but they were abolished, as promoting a spirit of gambling.

† Adair's Medical Cautions, p. 409. However trifling this exercise may appear to some people, yet, with the exception that it is not performed in the open air, there is hardly any that ought to be accounted superior to it. It has this advantage, that it may be used at all times, and in any room eighteen feet long; the height is not material, because good players never drive the shuttle-

Dumb-bells are mentioned as a mode of exercise, by an author who wrote in the time of Queen Elizabeth; and an exercise, of a nature somewhat similar, is recommended, in one of the Numbers of the Spectator, as excellent for opening the chest, strengthening the limbs, and giving a man all the pleasure of boxing without the blows. Dumb-bells may be rendered a most effectual mode of taking exercise; and if used at an open window, will prove highly beneficial. The late Dr Adair has strongly recommended what he calls '*the lead exercise*, which he thus describes: Two pieces of lead, from between half a pound to a pound weight each, according to the strength of the arms, are prepared, either in the form of a bullet, or oblong, like a rolling-pin. If the lead be uncomfortably cold, it may be covered with cloth. When used, the person is to stand upright, with his toes a little turned out; raise the leads nearly close to each other, opposite to the pit of the stomach, bending the knees at the same time; then thrust the arms down smartly, as far as they will go without stooping, and straighten the knees at the same instant, and thus continue these opposite motions, alternately, and quickly, until the arms feel slightly fatigued, and repeat it three or four times a-day, especially before breakfast, dinner, and going to bed *.

In Hindostan, the natives have invented a variety of means of taking exercise, of a similar description to dumb-bells, some of which might, with great advantage, be introduced into general use in this country, Their instruments are usually made of wood; one set of these is similar in shape to a paviour's mallet, and very nearly as large, one in each hand,—they are played alternately round the head with extraordinary activity; and to continue the exercise for any length of time, requires much strength. The usual length of these mallets

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cock high. I have the more pleasure in recommending this exercise, as it is so well calculated for women, who cannot, with propriety, at all times, take sufficient out-door exercise, to keep them healthy. With the advantages of its being a social diversion, it most effectually exercises the whole frame, by the variety of attitudes called forth in playing. It also creates a graceful pliancy in the joints and muscles, accelerates the circulation of the blood, and propels, to the cutaneous pores, all the fluids prepared by nature to pass off by the skin; promotes the concoctive powers; and, if used before dinner, will admit of a considerable share of exertion, without any danger, care being taken not to drink any thing cold at the time, or imprudently to expose the body to a cold air.—*Smith's Letter to Dr Cadogan*, p. 64.

* Adair's Essay on Diet and Regimen, p. 64. The Doctor has expatiated at great length on the advantages of this exercise; and it seems to be rather an improvement on swing-leads or dumb-bells. Such domestic means of exercise, always ready at hand, must be of service to those, who, from the pressure of business, cannot go abroad to take the necessary exercise out of doors; also to sedentary people, who will not take the trouble of dressing to go out; and to valetudinarians, who can take a little, but not severe exercise.

is about two and a-half feet. Another Hindoo exercise, which requires both hands, is swinging a very heavy club round the head. These are only a part of the exercises, in which not only the Indian athletæ engage many times daily, but for which many of the Indian youth of every village set apart a portion of each day; and there is commonly a piece of play-ground allotted in the neighbourhood of the village, for athletic exercises.

Pensile or Suspended Beds.—The celebrated Asclepiades, by a number of new improvements in medicine, if he did not effect more cures than other physicians, at least kept up longer the hopes and spirits of his patients. Among his inventions, none was more approved of than the *lecti pensiles*, or suspended beds, by means of which, the patient might be moved to and fro, so as to give him some exercise *; or, if it were necessary, he might be rocked to sleep. These beds obtained so much favour at that time, that they were made even of silver, and became a very important article in the furniture of the luxurious.

Swinging in the open air, as exercise for the weakly and the invalid, is nearly equal to exercise in a carriage, and has the advantage of being within the reach of those, who may not find it convenient to resort to the more expensive mode of seeking health.

Declaiming, or exercising the Voice.—It is not generally known how much exercise there is in speaking. All exercise produces its effects in a principal degree, by acting on the circulation of the blood; and it must be evident, that by increasing the action of the muscles of respiration, the circulation of the blood must be forwarded. Speaking therefore, is a very effectual mode of taking exercise, and has, by some authors, been regarded as particularly salutary to the female sex, who, but for their natural propensity to exercise the voice, might suffer from the sedentary nature of their occupations †. Loud reading and speaking, may be regarded as advantageous to literary men, affording them good substitutes for other kinds of exercise, for which they seldom have sufficient leisure or opportunity. It is to this cause that we may justly ascribe the longevity of many schoolmasters, lawyers ‡, and teachers in universities, who, notwithstanding their sedentary employments, and the vitiated air they daily breathe in school-rooms and courts of justice, preserve their health, and attain a long life *.

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* Grieve's Celsus, Book II. cap. 15, p. 88.

† Dr Andrew observes, that singing and speaking aloud, are most healthful exercises; and that one reason why women require less bodily exercise than men, is, that they are more loquacious. See Mackenzie's History of Health, p. 380, note.

‡ It has been ascertained, that the medium age attained by the advocates of

Singing in moderation, may be attended with beneficial consequences, or, at least, may be useful to the lungs; it is also to be recommended, on account of its enlivening effects upon the mind. Artificers and mechanics, whose employments are sedentary, almost always sing at their work, from habit, and thus instinctively contribute to the preservation of their health †.

But though singing, in moderation, may be justified, yet the labour thrown on the lungs by wind instruments, may prove highly injurious to young people, especially if they have any consumptive tendency. The exertions which such instruments occasion, are too powerful to be wholesome, and are apt to strain the vessels of the lungs.

FRICTION.

There is no subject to which it is more necessary to call the attention of every individual, desirous of preserving health, or attaining longevity, than to the advantages of *friction*. The ancients placed so high a value upon it, that they scarcely passed a day without it; whereas the moderns pay but little attention to this useful practice. Yet how many are there, who keep a number of grooms to curry their horses, *who would add ten years and upwards to their own comfortable existence*, if they would employ but one of them to curry themselves with a flesh-brush, night and morning! ‡

In considering this most interesting branch of the present inquiry, we propose briefly to touch on the following points:

Edinburgh, is 60 years; and when they reach the bench, it is supposed that at least ten years may be added to the average duration of their lives. Judges usually attain great age.

* Reading aloud is much recommended by Celsus, especially to those who have weak stomachs, Book I. cap. ii. And it cannot be too strongly enforced, that reading aloud, singing, and exercising the voice, contribute much to influence the state of the digestive organs, as well as of the lungs; and when other exercises cannot be used, they form an useful substitute. *Turnbull's Medical Works*, p. 123.—Many imagined that Mr Betty, or the Young Roscius, as he was called, would have been thrown into a consumption by his theatrical exertions; whereas, on the contrary, his lungs were strengthened by them, and his health on the whole improved.

† Willich's Lectures on Diet and Regimen, p. 459.

‡ Valangin on Diet, p. 217. Almost every body knows, how useful it is to horses to be well curried. The good effects of currying are to be attributed to its increasing the cutaneous circulation; and at the same time, by clearing the mouths of the excretory ducts, it forwards the function of perspiration. It is said that an ox, if carefully curried *on one side only*, will be found fatter on that side than on the other.

1. The various modes of applying friction; 2. The time when it should be applied; 3. The advantages of using it; 4. The application of unction with it; and, 5. Miscellaneous particulars.

1. Friction may be applied with the naked hand—with flannel or coarse linen—with a flesh-brush—and these means may be accompanied by water, oleaginous and saponaceous substances, or with spirituous embrocations.

Friction with the hand is called *champooing* in India; and there the daily use of it is by many considered indispensable. In hot countries, where sufficient exercise cannot be taken in the open air, this sort of exercise cannot be too much recommended. Champooing however, is not mere friction, but includes pinching and compressing the soft parts, suddenly bending the joints, and beating the part champooed with the palm of the hand, and with the little-finger side of the doubled fist. The effect of champooing, when under the influence of great fatigue, or to those suffering from the weary pains in the limbs produced by fever, is beyond description comfortable. Dr William Balfour of Edinburgh, has long practised a peculiar mode of treating inveterate cases of chronic rheumatism, and similar disorders, to which he has given the name of "Compression and Percussion;" and seems to have been very successful, in many cases where the patients had long suffered from their complaints *.

Instead of the naked hand, some prefer friction applied by means of a piece of coarse flannel, or linen, or with gloves made of flannel, quilted silk, or hair, and think, that in this way the flesh is compressed more than with the flesh-brush, by which indeed, the surface of the body principally is affected.

The flesh-brush however, may be considered, as on the whole, the best mode of applying friction, unless where the assistance of aromatics or embrocations is necessary; for it may be adapted, in point of hardness, to the nature of the case for which it is intended; it excites the cutaneous circulation, moderately compresses the muscles, and clears the skin effectually, producing a temporary glow.

In cases where the application of cold water, in addition to moderate friction, is recommended, a sponge is sometimes preferred, from its power of absorbing water. But by immersing a flesh-brush in water, the same effect may be obtained; and the advantages of the flesh-brush, and the increase of circulation which it occasions, may be obtained at the same time.

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* Vide Appendix.

Oil, saponaceous, or other medicinal substances, where necessary, should be applied before using the flesh-brush.

Cases which require embrocations, do not come within our present section: we may observe however, that although the flesh-brush may be used after the application of embrocations, these remedies are best applied by means of coarse and warm woollen cloths or hair-gloves.

2. As friction proves most beneficial and effectual when the body is perfectly naked, the best time for resorting to it is in the morning, on getting out of bed, and at night before going to bed. In the morning, it will prove useful by removing concreted perspiration; and by giving activity to the cutaneous circulation, it will invigorate and prepare the body for the duties of the day; at night, it will be found refreshing, and contribute to a sound night's sleep.

When the stomach is disordered, or incapable of performing its functions, rubbing the belly with a brush, or with flannel, is of great use. Friction, thus applied, every morning, (and at night, if it should be necessary), will strengthen the stomach and the organs therewith connected. But, in order to obtain such beneficial effects, the friction must be performed on an empty stomach, as in bed, before rising, and gently and steadily, in a circular direction, at least for five or ten minutes at a time.

3. Frictions will be found highly useful in promoting the growth and activity of children, in preventing the obstructions to which they are liable; and, above all, may be considered as a valuable remedy for the rickets, more especially if cold bathing be used at the same time.

The advantages of friction to gouty persons, are ably described by Cadogan. He observes, that when a person is unable to walk or ride at all, he may, by degrees, be brought to do both, *by means of friction.* For that purpose, a handy active servant or two, must be employed to rub him all over, as he lies in bed, with flannels, or flannel gloves, fumigated with gums and spices, which will contribute greatly to brace and strengthen his nerves and fibres, and move his blood, without any fatigue to himself *.

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* See Cadogan's Dissertation on the Gout, p. 86. This may seem but a trifling prescription to those who have never tried it sufficiently; but its effects are amazing, especially upon those who are too weak to use any muscular motion themselves. A little friction may have little or no effect; but if long continued, and repeated often, with fumigated flannels, it will do more to restore health, and support it afterwards, than most other expedients. It promotes circulation and perspiration, opens the pores, excites the minute vessels, strains and purifies the blood, and this without the assistance of any internal stimulus.

Frictions are also of great use in various other cases, as in rheumatism, paralytic affections, and, curiously enough, either in emaciation on the one hand, or corpulency on the other. The ancients, it would appear, had the art of rendering fat people lean, and those that were too lean, fleshy, partly by means of active exercises in general, but more especially by frictions *. Galen is said to have restored, by means of friction with fat substances, in the space of a few days, the flesh of many who had been emaciated. It is reported, on respectable authority, that a child having one of his legs strong and lusty, and the other much emaciated, frequent friction with flannels, held in the fumes of myrrh and benjamin, rendered his emaciated leg as strong and lusty as the other †. The truth is, that friction, like every description of exercise, increases the bulk of the muscles, but removes the external fat.

Friction is peculiarly calculated for those who have weak nerves, who lead a sedentary life, who are subject to weakness in their joints, or who are threatened with paralytic disorders. They are thus enabled, to supply the want of exercise of other kinds, provided their whole bodies, more particularly their limbs, are rubbed for half an hour, morning and evening, with a flesh-brush, flannel, or napkin, till the parts become red and warm. The friction should begin with the hands, arms, feet, legs, and thighs; and thence ought to proceed to the shoulders, back, and breast; the head should be rubbed last of all. The effects of this practice, when used with care and constancy, are more important than will be easily believed; and though it cannot be attended with all the advantages derived from exercise in the open air, yet it is, in many cases, the best substitute for more active exertions.

4. Bacon strongly recommended, that the skin should be lightly anointed with oil after friction, lest the outward parts should become dry and juiceless by perspiration; and, in vehement exercises, he recommends unction to be used, both in the beginning and at the end, as was anciently practised by champions.

In regard to the external application of oil to the human body, the best treatise that has hitherto appeared upon that subject, was written by Mr William Hunter, a surgeon in the service of the East India Company. The following are the ge-

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* Salzmann's Gymnastics for Youth, p. 169.

† Burton on the Non-naturals, p. 280. Another child, about five years of age, who could not stand, and whose back was so weak that it was quite bent, by the use of friction all over his body, particularly on the back-bone, with the assistance of cold bathing, was quite restored.

neral results which he deduces from his inquiries: 1. That the application of oils, and other unctuous substances, to the skin, serves to guard the body against the inclemency of the weather, particularly cold and moisture; 2. That it may prevent too profuse perspiration in hot weather, and thus counteract one cause of debility; and, 3. That in dropsical complaints, the application of oil is useful, more especially when joined to brisk, and long-continued friction, as it does not prevent the giving of proper medicines by the mouth; being, at the same time, a powerful auxiliary in the treatment of this disease *.

5. The following miscellaneous observations on the subject of friction, are worthy of notice.

Celsus, with some indignation, refutes the claims of Asclepiades, who pretended to be the inventor of friction. He certainly improved the practices connected with it, though its general advantages were comprised in a few words by Hippocrates, who said, " That friction, if violent, hardens the body; if gentle, softens it; if plentiful, it extenuates it; and, if moderate, increases its bulk †."

One of the great advantages of friction is, that it renders

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* Hunter's Essay on the Diseases incident to Indian Seamen, one volume folio, printed at Calcutta, anno 1804, p. 158. App. No. 14. Mr Hunter also takes notice of three other questions, regarding the use of oil: 1. Whether it is a protection from contagion; 2. Whether it is worthy of trial in the incipient stage of plague; and, 3. Whether nourishment may thus be conveyed. Another ingenious author, on the external application of oil, remarks, that among the ancients, the practice of anointing the surface of the body with odoriferous oil, was generally associated with the use of the bath. Lord Bacon, in his History of Life and Death, regrets the disuse of this custom, and thinks the revival of it would be conducive to the preservation of health, and the prolongation of life, by preventing what he terms the predatory effects of the external air upon the spirits. By this expression, he probably means, regulating perspiration within due bounds. In what particular cases this practice would be found most salutary, the experience of modern times is perhaps not sufficient to decide. The external use of oil has lately been affirmed to have cured the plague. From the copious sweats which follow its use in that disease, we may conclude, that it does not impede the cutaneous discharge. From various experiments, it is ascertained, that oil may be applied over the whole surface of the body, at all seasons of the year, without danger. It appears to increase the general warmth of the system, and might probably be found useful in obviating the disagreeable effects of easterly winds on delicate constitutions, by preventing the too quick evaporation of moisture from the surface of the body. The oil of the cocoa-nut leaves no unctuosity behind it, and on that account is to be recommended. Oil, as already mentioned, is universally used by the natives of India; but a medical friend who has seen much of its use in that country, and who has himself tried its effects, is of opinion, that it is principally useful in cleansing the body, its application being followed by alkalescent juices of fruits, which, with the oil, act more effectually than soap in cleaning the skin. Its fattening effects probably are owing to the friction, a great deal of which is necessary to dry up the oil.

† Grieve's Celsus, Book II. cap. 14. p. 85.

the use of flannel, in many cases, unnecessary. The flesh-brush also, if used about the throat, is of great service in strengthening the organs about the tongue, and preventing hesitation in speaking. When used behind the ear, it has been found in a great measure to prevent, and even to cure deafness.

On the whole, it evidently appears, that the practice of friction is not sufficiently understood or attended to in modern times. It would, there can be little doubt, tend much to the improvement of medicine, if all that is recorded upon this subject were collected, and thoroughly digested; and if experiments were tried, to ascertain its effects. Many improvements have been made in the art of friction, as a cure for disease, by Mr Grosvenor of Oxford. It is unfortunate that he did not leave behind him an account of the process he pursued, and the effects resulting from it *.

SECT. II.—*The Advantages of Exercise, in preventing or curing Disease.*

THE general uses of bodily labour and exercise, and their varieties having been explained, it will now be proper to consider the advantages of exercise, 1. In preventing disease; 2. In curing disease without the assistance of medicine; and, 3. In facilitating a cure when medicines are necessary.

1. *Exercise prevents Disease.*

It has been justly observed, that if only some of the many advantages resulting from exercise, were to be attained by any one medicine, nothing in the world would be in more esteem, or more anxiously sought after; but we are too apt to slight the advantages which are to be procured by other means than medicine, particularly when occasioning trouble. Hence exercise is neglected, though, by attending to it, many of those disorders to which mankind in general fall a sacrifice, might be prevented.

There was a time, we are told, when diseases were little known, when age was the only infirmity, and death the sole physician. If such a time ever existed, it must have been when men, 1. By labour, or abundant exercise, promoted a regular and complete circulation of their blood; 2. By great exertion freed their bodies from impurities; and, 3. By constant exposure to the open air, were hardened against the changes of the seasons.

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* Mr Grosvenor had promised to draw up, for the author, an account of his system, but unfortunately died before his intentions were accomplished.

By such means as these, we should probably be secured against three-fourths of the usual catalogue of diseases.

1. We have said enough to prove, that without exercise the body falls into a state highly susceptible of disease; by a sedentary life, the circulation becomes sluggish, substances which ought to be discharged by the emunctories of the system, are returned to the blood; the circulating fluids are thus rendered impure, and the whole frame becomes gross and unwholesome. Such a condition cannot last long with any safety. Unless therefore, a well-regulated system of exercise be commenced, and persevered in, disease will inevitably take place. But we may observe, that matters are sometimes forced to a crisis, by individuals, who by indolence, having brought their health into danger, are suddenly induced to under take severe exercise, at a time when the fluids of the body are predisposed to disease; and bilious fever, or some other alarming indisposition follows *.

2. Nothing can better prove the value of exercise than the fact, that it may overcome the injurious effects of a gross diet. It is very certain, that the culinary arts were not of old cultivated so much in England as at present; while it is equally certain, that in former days, the English were very intemperate livers. But in those days, if a man or woman had a short distance to go, the journey was made on foot; if a greater distance, it was made on horseback; and in both cases there was

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* The principal source of our well-being arises from the circulation of our fluids, especially the blood. A brisk circulation animates the whole man. Even a phlegmatic person is exhilarated when any thing sets his blood in commotion; and when this takes place in an immoderate degree, the man is agitated even to delirium. These effects are well known. Continued rest weakens the circulation, till at length the blood feebly creeps through its vessels; for the heart is not of itself sufficient to give it due motion: to accomplish this, muscular movement is likewise requisite. But rest of body relaxes the muscles, diminishes the vital heat, checks perspiration, injures digestion, sickens the whole frame, and thus numberless diseases are introduced. There is not a single part of the human machine, which a sedentary mode of life does not debilitate. Generally speaking, says Ackermann, a sedentary life is the source of all those diseases which physicians call cachectic, the number of which is considerable. Among them are jaundice, atrophy, worms, tetter, obstruction of the natural excretions, dropsy, &c.: for these, exercise is the best remedy; it strengthens the vessels, says Tissot, preserves the fluids in a healthy state, quickens the appetite, facilitates the excretions, invigorates the spirits, and excites pleasing sensations throughout the whole system.—*Salzmann's Gymnastics for Youth*, p. 69.

abundant exercise taken in the open air. The use of the bow and arrow, and the art of wielding the broad sword, and other violent and healthy exercises, were then necessary accomplishments for every person who ranked as a gentleman. *By these exercises, the digestive powers were strengthened, and by perspiration, those acrid humours were dissipated, which, when retained in the blood, occasion so many disorders*[*].

3. It has been observed, that *liver complaints*, and other glandular obstructions, are much more frequent now than formerly. So long as the liver, the kidneys, and other glands of the body, duly perform their respective functions, health is seldom impaired; but without exercise, the glandular system is certain to become deranged, and the whole body falls into a state of disorder, from which it may be impossible to recover it.

Not only is the necessity of exercise in general, to be enforced, but certain exercises are found to be admirably calculated for the prevention of particular diseases. And in regard to nervous complaints, nothing is so beneficial as exercise in the open air. We seldom hear the active or laborious complain of nervous diseases: these, and their endless train of mental and bodily sufferings, are reserved for the sons and daughters of ease and affluence.

It is farther to be observed, that the more luxuriously any individual lives, the more he requires exercise; and that not only of the passive, but of the active, or even of the violent kind. To persons therefore in the upper rank of life, the subject of exercise is of peculiar importance, and requires the most scrupulous attention. Indeed the poor countryman, needs scarcely complain of the extent of his labour, or the hardness of his fate; for he enjoys a thousand times more real happiness, than the inhabitant of the palace, who, for want of labour or exercise, is courted in vain by every enticement to repose.

The effect of want of bodily exercise upon the mind, is a circumstance well entitled to peculiar attention. A costive habit, so often resulting from indolence, may, as Kotzebue observes, extinguish the divine flame of genius: and it can hardly be doubted, that if the body labours under ill health, the mind will be unable to achieve any thing that is great and noble.

Corpus enim male si valeat, parere nequibit
Præceptis animi, magna et præclara jubentis [*].

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[*] Smith's Letter to Dr Cadogan, p. 65.

[†] Marcell. Palign. lib. 10.

The following facts regarding Cicero and Cæsar, afford strong evidence of the advantages which, not only individuals, but nations may derive, from due attention to exercise.

Cicero is described by Plutarch, as being, at one period of his life, extremely lean and delicate, and having such a weakness in his stomach, that he could eat but little, and that not till late in the evening. He travelled to Athens however, for the recovery of his health, *where his body was so strengthened by gymnastic exercises*, as to become firm and robust: and his voice, which had been harsh, was thoroughly formed, and rendered sweet, full, and sonorous *.

The same author informs us, in regard to Julius Cæsar, that he was originally of a slender habit of body, had a soft and white skin, was troubled with pains in his head, and subject to epilepsy; but by continual marches, coarse diet, and frequent lodging in the fields, his body became strengthened, and he found the exercises and hardships of war, the best medicine against his constitutional indispositions.

With such examples before us, who would not be animated to take suitable exercise, without which Cicero would never have triumphed at the bar, nor Cæsar in the field of battle? It is absurd to maintain, that a due attention to exercise, requires too much time, and is inconsistent with elevated situations, or literary fame. By whom were greater actions performed, or works more conspicuous for mental ability produced, than by the two distinguished characters above alluded to?

2. *Exercise cures Disease, without the Aid of Medicine.*

There can be no doubt that exercise is highly efficacious in many disorders; and Hoffman justly celebrates it as the best of medicine †.

There are many instances recorded in ancient authors, of the great efficacy of exercise in the cure of diseases. Plato tells us, that Herodicus was cured of an hypochondriacal complaint by exercise. Pausanias relates, that Hysmoneus was relieved from great weakness of nerves by addicting himself to the five Olympic exercises; and that he thereby acquired such a degree of vigour, as to obtain many prizes at the Olympic games: And Plutarch says, that Laomedon was so perfectly cured by exercise, of an obstinate disease, as to excel in running [*].

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* See Plutarch's Life of Cicero.

† De Motu Corp. Op. Med. A celebrated poet, (Dryden), asserts, that

"The wise for cure, on exercise depend:
God never made his work for man to mend."

It is very true, that in many branches of medicine, the ancients were inferior to the moderns; yet they treated diseases with great success; for they applied themselves with extraordinary diligence, to acquire a thorough knowledge of the symptoms of every disorder; and in their treatment *they called in the aid of corporeal exercises*, by means of which they supplied what was wanting in their other remedies [†]. Herodicus is said to have carried *gymnastic medicine* to such a pitch, as to have actually applied a particular kind of exercise to each disease [‡].

We shall briefly allude to some of the diseases, in which exercise has been found most effectual.

Gout.—Sydenham affirms, that nothing so effectually prevents indigestion, (which he considers to be the principal cause of gout), and consequently strengthens so much the fluids and solids of the body, as exercise. But as there is more necessity for effecting a thorough change of constitution in gout, than in any other chronic disease, so exercise, unless it be systematically used, will be of little or no service; and if resorted to after it has been abandoned for a considerable time, it perhaps may do mischief, by proving the immediate cause of a fit. Indeed, if exercise be omitted, all the remedies which have hitherto been discovered, will be of little avail in eradicating gout. The exercise however, should be moderate; because, if violent, persons advanced in life, who chiefly are subject to gout, have their spirits too much wasted, and their digestive powers injured, which regular and gentle exercise would strengthen. Sydenham considered riding on horseback as the best sort of exercise; and indeed so advantageous in the gout, and other chronic diseases, that, if any person, he observes, were master of so effectual a remedy, and possessed, at the same time, the means of concealing it, he might easily enrich himself. If riding on horseback cannot be used, going frequently out in a carriage, he thinks, is the best substitute [§].

Rheumatism.—The beneficial effects of exercise in chronic rheumatism, more particularly in the sciatica, has, so far as the one case goes, been lately ascertained in a most satisfactory manner. A gentleman who had resorted to all the known remedies in vain, resolved to try the effects of *sweating walks.* For that purpose, he got stockings, drawers, and shirts of fleecy hosiery, and applied eight plies of flannel to the chief seat of the disorder, wearing at the same time warm pantaloons and a great-coat. Thus equipped, he walked from one to two miles, according to the state of the weather. The consequence was a profuse perspiration. When he returned home, he had a couple of changes of well-aired flannel, and then lay down upon a bed not warmed. His complaint was completely cured; his appetite increased; his general health improved; he became less sensible of cold, or variation of temperature; and he is now convinced, that exercise is greatly preferable to heated air, or hot water *.

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[*] Adair's Medical Cautions, p. 410.

[†] Salzmann's Gymnastics for Youth, p. 154.

[‡] See Haller on the ancient authors who have written on health; Code of Health, 2d edit. vol. ii. p. 170. Plato de Republica, lib. ii. p. 622, celebrates also Ikhus of Tarentum, for his skill in gymnastic medicine.

[§] Swan's Sydenham, p. 497.

We must refer the reader to the article on *Friction*, and to the Appendix, for some important hints on the treatment of rheumatism, in many cases of which the *flesh-brush* proves a specific.

Consumption.—In most chronic diseases, but especially in consumption, riding on horseback has given relief, in a manner almost incredible; and indeed, is not only proper in slight indispositions, accompanied with a frequent cough and wasting, but, according to Sydenham, even in confirmed consumptions, wherein looseness is succeeded by night sweats, which are the general forerunners of death, in this disease †.

Nor is riding the only exercise useful in consumptive cases. A gentleman, whose son was troubled with pains in his left side, and who seemed to be threatened with a consumption, if it had not actually begun, resolved to try exercise, and prevailed on him to use the *skipping rope.* He began this exercise about twelve years of age, and continued it for about a twelvemonth, when it became no longer necessary, as his health was perfectly re-established, and there remained no tendency to consumption.

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* Medico-Chirurgical Transactions of London, vol. iii. p. 310. The account is communicated by Dr Mancet, of Guy's Hospital.

† See Swan's Sydenham, p. 445. It is remarked by Dr Swan in a note, that riding on horseback, in the commencement of consumption, and in young persons of a plethoric habit, sometimes proves detrimental, by occasioning spitting of blood; or, where the lungs are considerably tainted, it will bring on a fatal inflammation; but in any hypochondriac consumption, or atrophy, moderate exercise, frequently repeated, is highly proper. See also Hoff. Op. tom. iii. p. 294. In addition to what Sydenham says, Fuller, in his Medicina Gymnastica, has assigned various reasons in support of the doctrine, that riding on horseback, if taken in time, is an effectual remedy for a consumption; and he quotes the instance of Dr Baynard, who, by constant riding in the open air, and more especially in high and airy situations, recovered from a consumption, when everybody gave him over as lost.—*Fuller's Medicina Gymnastica,* p. 116, &c. &c. where other instances are adduced. There is also an instance, mentioned in "*The best Method of preserving Health,*" p. 139, where a patient was cured by riding, after being brought so low, that recovery could not be expected. Dr Buchan, in his Domestic Medicine, p. 173, states, that he had known many instances of consumptive patients, who had been sent from a populous town in England, (Sheffield), with orders *to ride about,* and to live on milk and vegetables, who returned in a few months quite plump, and free from complaint.

Nervous Disorders.—As the labouring classes of the community are seldom afflicted with nervous disorders, it is natural to suppose that a resolute course of exercise will prove an effectual remedy for such complaints. Many have been cured by perseverance in walking; before they have travelled many days, every symptom has been removed.

Bilious Diseases.—Most writers on bilious and dyspeptic affections, strenuously recommend exercise for their prevention, and for the complete restoration of the health of those who have suffered from them. Sydenham considers riding on horseback a specific for the *bilious colic.*

Dropsy.—There is a species of *anasarcous* dropsy, for which riding on horseback is an effectual remedy. The ancients, it would appear, relied much on exercise for the cure of this complaint; and as it is an affection generally arising from weakness, or a loss of the balance, which, in health and strength, exists between the blood-vessels and the absorbing vessels, the good to be derived from exercise, and particularly from friction in all its modes, seems self-evident *.

Palsy.—A person threatened with the palsy, was ordered to take a journey to Bath by way of cure. In going down he thought he would try the effect of walking, having it always in his power to go into his carriage, when he was fatigued; he derived so much benefit from the exercise he thus took, that he was cured of the disorder before he reached that city †. At the same time, it is proper to observe, that in cases of threatened apoplexy, exercise must be used with the greatest caution.

Diseases of the Mind.—The celebrated Hoffman cured idiotism by exercise; and, according to Descartes, the mind depends so much on the constitution and state of the bodily organs, that if any means of increasing the powers of the former were to be found, they must necessarily be sought for in the art of medicine, accompanied by a due proportion of exercise. A well framed, and well exercised body, is precisely what facilitates the proper performance of the mental functions; and a healthy organization of the bodily powers, is the best foundation for that noble endowment, known under the name of *common sense*, or a sound understanding [*].

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* This subject is very fully treated of in Fuller's Medicina Gymnastica, p. 107, and 225.

† See Fuller's Medicina Gymnastica, p. 482, where there are other facts regarding the cure of palsy by vigorous exercise.

A number of cures, in various other disorders, have been accomplished by the exercise of sailing. A respectable physician has collected several cases, in which this exercise was of the highest service, not only in the complaints already mentioned, but also in nervous pains of the stomach, in vapourish languor, in fever of doubtful and difficult recovery, &c. [†].

There are many particulars to be attended to in regard to the choice of exercise in the treatment of diseases. Every kind and degree of exercise is not fit for every constitution, far less in every distemper, or at all times. The proper sort of exercise to be recommended, must depend upon particular circumstances of habit, age, constitution, &c. [‡]; and in cases of disease, exercise, of course, as well as the rest of the treatment, ought to be under the directions of the physician.

3. *Exercise facilitates a Cure, where Medicine is necessary.*

Exercise is well entitled, in various respects, to be considered as *a common aid to physic*, to apply a phrase which Asclepiades originally made use of. When the body is, by exercise, preserved in good health, and all the humours are wholesome, if it be attacked by disease, it is the more easily restored to health. Hence it is well observed, that we ought to attribute the wonderful success of the ancient physicians, in curing diseases, with such indifferent materials as their pharmacy afforded, to the patient preserving his blood pure, and his body healthy, by attention to exercise [§].

It is to be observed, that exercise is to physic, what a bandage is in surgery, an assistance or medium, without which, many other prescriptions, though ever so excellent, will not succeed. The virtue of some medicines is increased by means of exercise; while, with others, exercise is only necessary to remove some inconvenience attending their operation, which without it is so great, as to deter people from using them so liberally as they ought to do *. Thus, medicines of a balsamic and chalybeate nature, are not likely to answer the purposes for which they are intended, unless they are accompanied with exercise; and if exercise be omitted in the case of gouty patients, all the other remedies which have hitherto been discovered, will be of little avail †.

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[*] Salzmann's Gymnastics for Youth, p. 180.

[†] See Gilchrist on the Use of Sea Voyages in Medicine, p. 17, &c.

[‡] Ibid. p. 12.

[§] Fuller's Medicina Gymnastica, p. 67. A body duly exercised in the open air, if exposed to any toil or sickness, is not soon affected by it, or easily subdued, the inward parts being all sound, and in good condition, and the outward so well fortified against external attacks, as not easily to receive injury from the attacks either of cold or heat. See Lucian's Dialogue of Gymnastic Exercises, translated in West's Dissertations, p. 171.

It is farther to be remarked, that by means of the invigorating quality of exercise, the efficacy of medicine is increased, by extending its powers to every part of the system, and at length promoting its discharge when it is no longer useful ‡.

This part of the subject may appropriately be concluded, with the advice of an elegant poet, which cannot be too strongly recommended to the attention of every individual to whom health is an object:

> "Toil, and be strong. By toil the flaccid nerves
> Grow firm, and gain a more compacted tone;
> The greener juices are by toil subdued,
> Mellowed, and subtilized; the vapid old
> Expelled, *and all the rancour of the blood* §."

SECT. III.—*General Rules regarding Exercise.*

THE rules with regard to exercise may be classed under the following general heads: 1. Time; 2. Place; 3. Quantity; 4. Age; and, 5. Sickness.

1. *Time.*—Authors differ considerably regarding the proper time for taking exercise. Some recommend it to be taken early in the morning, when the stomach is empty, and the body refreshed with sleep; but many cannot take exercise when fasting, consequently, this rule cannot be uniformly followed. It is generally admitted, that when the weather is not too hot, the proper period for active exercises in the open air is between breakfast and dinner ‖. It is certainly injudicious to take a great deal of exercise immediately after so heavy a meal as dinner usually is in this country; at the same time, during the summer season, the dinner is frequently

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* Fuller's Medicina Gymnastica, p. 58.

† See the Best Method of preserving Health, p. 138.

‡ Adair's Medical Cautions, p. 410.

§ See Armstrong's Art of preserving Health, book iii. line 39.

‖ Dr Franklin observes, that exercise should precede meals, not immediately follow them; the first promotes, the latter, unless moderate, obstructs digestion. See his Essay on the Art of procuring Pleasant Dreams.

earlier and lighter, and consequently, at that period, persons may take exercise in the evening as well as in the morning *. It is well known, that violent exercise is more necessary in cold than in hot countries, and is peculiarly essential during the winter season, for promoting perspiration, on the due performance of which function so much of health and comfort depends. Nothing indeed, is more conducive to bodily health, than long walks in winter, when the air is pure and bracing, and the cold induces activity. Nor has any of the seasons a more beneficial influence on our health than winter. Unfortunately however, we counteract this beneficial influence, by continually indulging in the heated air of our parlours, which lays a foundation for those diseases of the spring, which we then erroneously ascribe to that season of the year †.

2. *Place.*—In all large and well regulated cities, there ought to be play-grounds, or places for public exercise, where labourers, and trades people, might assemble for recreation, and amuse themselves with walking, or other healthful exercises. This would prove the most likely means of warding off the diseases, to which their confinement in ill-ventilated manufactories, or ill-aired work shops, is so liable to give origin.

The general decay of those manly and spirited exercises, which were formerly practised in the metropolis and its vicinity, has not, we may suppose, arisen from any want of inclination in the people, but from the want of places for that purpose ‡. Spaces which in times past had been set apart for this purpose, are now covered with buildings, or shut up by inclosures; so that, if it were not for skittles, and similar pastimes, artizans and manufacturers would have no amusements, likely to give healthy exercise to the body. And even skittle grounds or bowling greens, when met with, are usually attached to ale-houses, and other houses of public entertainment; so that instead of proving healthy or beneficial, by promoting salutary exercise, these games frequently become the preludes to drunkenness and debauchery, by which the benefits of the exercise are more than counteracted. Honest Stow, in his

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* Darwin justly remarks, that in summer, weak people cannot continue too long in the air, if they can do so without fatigue; and in winter, they should go out several times in a day, for a few minutes, using the cold air like a cold bath, to invigorate and render them more hardy.—*Darwin's Zoonomia,* vol. ii. p. 692.

† Salzmann's Gymnastics for Youth, p. 232.

‡ Near all great cities, there should be *hypodromes* and *ambulacrums,* for the benefit of air and exercise; which might be erected, either by subscription, or as a commercial speculation; and it is satisfactory to observe, that this subject is likely soon to occupy the attention of Parliament.

Survey of London, laments the retrenchments of the grounds appropriated for martial pastimes, which had begun to take place, even in his day *.

It is however, to be observed, that artizans of the present time, are under the necessity of working for too great a portion of the day, to give them much leisure for gymnastic pastimes. Still it is to be lamented, that more encouragement is not held out to the lower classes to engage in many of those innocent and healthful amusements, which we have just described, and which were formerly so much in favour among all classes in this country.

But although the lower classes have almost ceased to engage in the strengthening games, and manly exercise of the olden times, it is satisfactory to find the youth of the higher ranks encouraging gymnastic exercises, and that these are fast becoming a regular portion of a young gentleman's education †.

3. *Quantity.*—The opinions which have been published, regarding the quantity of exercise to be taken, differ materially; and, indeed, must necessarily vary, according to a number of circumstances, as age, the season, the constitution, the object, &c.

Cheyne observes, that valetudinarians, and the studious, ought to have stated times for riding or walking, and that in good air. Three hours at least should be allotted for riding, or two for walking, the one half before dinner, and the other half, in the summer season, in the evening; the first to beget an appetite, and the second to assist digestion, and to promote sleep ‡.

It is a just observation, that exercise, at all seasons of the year, should be proportioned to the powers of the body. For the weak, in general, it is better to take three short walks, than one long one. No advantage is gained by over-exertion, for subsequent rest does not recruit, and sleep often cannot be obtained §.

It ought to be constantly inculcated on mothers and nursery-maids, that children, if at all delicate, should not be allowed to walk long at a time. Short efforts, with intervening repose, should be the rule for the nursery. When the bones are in the least too soft, much mischief is done, by keeping the limbs long on the stretch. Even healthy children, of two or three years of age, have been hurt by walking about a mile. Their own feelings are the best criterion *.

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* Strutt's Sports and Pastimes, Introduction, p. 46.

† Vide App. Gymnastic Exercises.

‡ Essay on Health, p. 98.

§ Manual of Health, p. 292.

This rule is of particular importance in boarding schools where the corporeal strength of a governess is too frequently allowed to regulate the length of walks to be taken by the young ladies, to the serious injury, and even danger of the more delicate girls. It is a very great pity that young ladies are not, like their brothers, left to their own feelings, as to the quantity of exercise they are fit for.

Exercise ought only to be continued until we feel an agreeable lassitude, and a sensible degree of perspiration. If it be carried farther, it weakens, instead of strengthening, the body; and by filling the lungs with heated blood, it may be productive of injurious consequences.

Hence, however useful and necessary exercise is, it ought never to be carried to excess. It is well known, that many labouring men, not only wear out their constitutions by hard work, (which they are peculiarly apt to do, when they work by the piece as it is called), but also contract diseases, from which they never recover. Many females have been cut off, by carrying to excess the amusement of dancing †.

Impressed with these ideas, the celebrated Darwin contends, that the necessity of much exercise has perhaps been more insisted upon by physicians, than nature seems to demand. Few animals exercise themselves so as to induce visible sweat, unless urged to it by fear, or by hunger. And numbers of people in our market towns, of ladies, in particular with small fortunes, live to old age, in health, with very little bodily exercise, and without much activity of mind ‡.

The disadvantages of excess of exercise, are thus summed up by an intelligent physician:—It renders the circulation unequal and tumultuous; weakens the nervous system, and springs of life; exhausts muscular strength; disturbs and

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* Manual of Health, p. 292.

† Adair's Essay on Diet and Regimen, p. 74.

‡ Darwin's Zoonomia, vol. ii. p. 692. This doctrine is strongly objected to by Dr Beddoes, notwithstanding the respect he so justly entertains for the medical philosopher by whom it was brought forward. That many dowagers live long in provincial towns, he admits; but whether they live *in health*, is the question. These females, in general, live in a constant valetudinary state; dissolved by heat; pinched by cold; harassed by sleeplessness on going to bed; unrefreshed by their tardy morning nap; faint when empty; oppressed when full; and, in the intermediate time, suffering under some of the other plagues of indigestion. Their nerves also, commonly require drams, in the shape of drugs, to render their existence tolerable. See Beddoes's Essay on Consumption, p. 126.

lessens insensible perspiration; and, by promoting sweat, (a weakening evacuation), wastes the body, by discharging nutritious parts of our solids and fluids.

Let us consider the other side of the question.

It is an indispensable law of longevity, that exercise should be taken, for an hour *at least* every day, *in the open air* *, when the weather will permit.

Those who can, ought to spend two or three hours a-day on horseback; those who cannot ride, should employ the same time in walking.

It is a good rule, to appropriate a considerable and fixed time daily for being in the open air, taking moderate exercise, in proportion to the constitution and time of life †. Exercise, it is said, should, at least once a-day, proceed to the borders of fatigue, but never pass them.

On the whole, in regard to quantity, I am much inclined to believe, that excess of exercise is not so dangerous as some physicians are apt to imagine. The judicious Celsus thinks, that exercise may be continued until perspiration is commencing, or at least until lassitude, not amounting to fatigue, is felt ‡. So far as my own experience goes, I am convinced, that even excess *is occasionally of use*. Impressed with the opposite opinion, I was formerly accustomed to take only moderate exercise, sometimes on horseback, and sometimes on foot, walking perhaps three or four miles, at a moderate pace. But I was accidentally led to take a walk of eight miles, on an ascent, and in cold weather, and to walk quickly, so as to throw myself into a violent perspiration. The consequence was, a hearty appetite for dinner, and a pleasant and comfortable sensation for several days after. I am persuaded, that by active exercise, and the abundant perspiration thereby excited, some noxious matter, which renders the frame dull and sluggish, is got rid of; and that the body becomes light and healthy, in consequence of its being expelled. I would therefore, from the full conviction that much advantage may be derived from it, strongly recommend it to all persons, who are not too far advanced in years, or in a delicate state of health, to take a long ride or walk, at least once a-month §.

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* Hufeland on the Art of prolonging Life, vol. ii. p. 207.

† Code of Health, 2d edit. vol. ii. App. p. 45.

‡ See Grieve's Celsus, book i. cap. 2. p. 25.

§ I am glad to find these opinions corroborated, by an intelligent correspondent, the Reverend Doctor Gregory of West Ham, in Essex. The exercise

One observation still remains to be made on the subject of excess of exercise.

Every body knows, that great fatigue may be induced by very short exercise, when it is of the active kind, requiring strong muscular exertions; whereas, much passive exercise, as sailing, travelling in easy carriages, &c. may occasion little fatigue. Persons therefore, confound the effects, and erroneously imagine, that they have taken a great deal of exercise when they are extremely fatigued *. It is perhaps a good rule, that the lean should exercise *ad ruborem*, that is, till the body and spirits are gently heated,—for that will help to fatten them; and the fat *ad sudorem*, that is, till they perspire,—for that will help to reduce them, and generally improve the habit of the body †.

4. *Age.*—It cannot be doubted, that both the nature and quantity of exercise, must vary according to the age of the individual; and that the same rules are not applicable to the young, to those who are in a state of manhood, and to those who are advanced in life.

In regard to youth, abundant exercise, until the age of twenty, without being too exhausting, *is essential to promote the growth of the body.* It is necessary however, to distinguish the athletic from the feeble, and not to measure them by the same standard: the former may attempt all kinds and degrees of gymnastic exercises without danger; the latter must proceed more cautiously with respect to both. Nor should young people ever be set upon any thing beyond their size, their ability, or their strength, as taking too long a step at once, walking too much on a stretch, &c.; such exertions often prove injurious, and sometimes fatal.

They who are in the vigour of life, require active exercise to support the powers of the constitution, and to ward off disease.

Old age requires more circumspection; and, in general, it may be observed, that passive exercises are the best suited to the frail and feeble periods of life. People in years ought to prefer exercise, which does not occasion much fatigue, unless their habit of body is too full, when, in order to diminish

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of the mind, when carried to excess, he considers to be pernicious; the exercise of the body, on the contrary, even in excess, is wholesome. Over-exertion of the body, it is true, may produce temporary illness; but frequently repeated bodily exercise, more than any other cause, keeps off chronical complaints.

* Code of Health, 2d edit. vol. ii. App. p. 9.

† Lynch's Guide to Health, p. 290.

its bulk, the exercise may be brisker. Walking, on the whole, agrees best with them, excepting those who have been long accustomed to some other exercise.

There is no rule more essential to people advanced in life, *than never to give way to a total remission of exercise.* By degrees the demand for exercise may shrink, so that, in extreme old age, little more than a bare quit-rent is all that is called for; but this quit-rent must be paid, since life is held by the tenure. Whoever examines the accounts handed down to us of the longest livers, will generally find, that, to the very last, they used some exercise, as walking a certain distance every day, &c. This is mentioned as something surprising in them, considering their great age; whereas, the truth is, that their living to such an age, without some such exercise, would have been the wonder.

There is no point to which old people ought more to attend, *than to exercise their lungs*, for it is a decay in these organs which frequently occasions their death. In extreme old age, death proceeds from the gradual cessation of circulation; and a due action of the lungs is indispensable for maintaining the circulation in a proper state. It is a well-known fact, that a great proportion of elderly people drop away, from their lungs failing. The advanced age of schoolmasters, and other public speakers; and of Prin the glassblower, and others, may perhaps be, in a great measure, attributed to the exercise given to their lungs. Hence the importance to the aged, of preserving an erect posture, to give their lungs full play.

5. *Sickness.*—In acute distempers, notwithstanding the doctrines of Asclepiades to the contrary, rest is necessary; but in a convalescent state, exercise, under a proper system, is essential to recovery.

Sickly persons are apt to be alarmed, at the pain and trouble which often result from their first attempts to take exercise, at least to any extent. They ought, at the commencement, to desist before they begin to feel themselves fatigued; but every day they will be enabled to bear it longer; and the more they persevere, the stronger they will become.

Convalescents experience such surprising relief from gentle exercise and good air, that their friends and medical advisers, ought to insist on the trial being made; disregarding all the objections to the contrary, which the languid state of their mind, and the weakness of their body, may induce them to make.

When a patient is exceedingly weak, a hammock or sea-cot, ought to be slung in the bed-chamber, or in an adjoining room, which he might use like the pensile, or suspended beds, so much recommended by the ancients.

When an invalid is confined at home by bad weather, some domestic exercise ought to be resorted to several times a-day, in a well-ventilated room, care being taken to avoid exposure to a thorough draught of air. This will be found a more salutary mode of warming the body, than by the heat of fires. Not a day should be allowed to pass, without a degree of exercise accommodated to the strength of each individual. Few persons can long enjoy firm health, under a habit of indolence. By the weak and valetudinary, the studious and contemplative, exercise ought to be viewed as a matter of duty.

Those who cannot take a sufficient quantity of exercise, soon become liable to a number of disorders. Sleep is beyond their reach; and want of appetite, flatulency, anxiety, at one time obstructions or costiveness, at another looseness, and all the diversified symptoms of nervous disorders, are their constant attendants. Men of letters suffer much in this way, and are consequently often martyrs to neglect of exercise *.

Miscellaneous Remarks.—As an apology for indolence, some contend, that when exercise becomes habitual, or is undertaken with reluctance, it ceases to be beneficial; but this is contrary to observation and experience; for those who take daily exercise, find their strength or appetite maintained; whereas those who, from a change of circumstances, have made a transition from labour to indolence, have embittered and shortened the remainder of life †.

Lord Bacon confidently affirms, that frequent purges are more available for long life, than exercises and sweats, by which, not only the humours and excrementitious vapours are exhaled and consumed, but, together with them, the juices and good spirits, which are not so easily repaired; and he recommends purges to be taken immediately before meat, because they dry the body less, and trouble the belly least ‡. But it will be readily believed, that we do not agree in these opinions. Indeed, we consider habitual purgation as a most injurious practice, and regular exercise as the best means of preserving health.

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* Willich's Lectures on Diet and Regimen. It is unfortunate that men of letters are so inattentive to their health. Even the temperance by which many of them are distinguished, is no effectual remedy against the mischiefs of a sedentary life. They should endeavour occasionally to relieve at once their body and mind, by standing or walking about the room, and make it a rule to pass a certain portion of every day in the open air.

† Adair's Medical Cautions, p. 406.

‡ Code of Health, 2d edit. vol. iv. p. 217.

There are four expedients for procuring warmth in cold weather; fuel, bathing, warm clothing, and exercise. Fuel is certainly the worst, from the relaxing effects of fire on the human body. A brisk fire is likewise very injurious to the eyes. Bathing is of use as a temporary expedient, for producing warmth. By clothing the body we may retain heat; but still it is disagreeable to load the person with clothes, and it does not prevent the body from being injured by the impressions of the atmosphere; whereas, if the body be hardened by exercise, nothing affects it *.

Exercise is also attended with advantages both from the occupation which it furnishes, and the vacant time which it fills up. What can the indolent do with those hours which they ought to employ in exercise? They must either be devoted to total in activity, or to unnecessary sedentary application, (for unnecessary it must be, as there is time enough, during the rest of the day, for study), or to vicious purposes. Inactivity in man frustrates the very design of his creation. If the mind be not engaged in some useful pursuit, it is constantly in quest of ideal pleasures, or impressed with the apprehension of some imaginary evil; sources whence proceed most of the miseries of life.

One great advantage of labour or exercise is, that it makes the coarsest fare agreeable. When Dionysius the tyrant had tasted the black broth of Lacedemon, he abused it as miserable stuff; the cook replied,—"It was no wonder, for the sauce was wanting."—"What sauce?" says Dionysius. The answer was—"*Labour in exercise, in hunting, running, sweating; hunger and thirst; these are the sauces we Lacedemonians use* †."

The following rules regarding exercise, merit particular attention, as they contain the substance of most of the preceding observations.

1. Bodily exercise should be taken at least once a-day, and before a meal, so as to excite a natural heat or glow. 2. The effect of any exercise should be as general as possible, and not confined to any particular limb or part of the body. Those exercises therefore, which give action to the greatest number of the bodily organs, as walking, running, riding, &c. are to be preferred. 3. Those who follow any trade, as smiths, weavers, &c. when they exercise their bodies, should pay particular attention to those parts which their occupations leave inactive. 4. Little benefit is to be expected from exercise,

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* Institutes of Health, p. 23.

† Cicero, 3. Tuscul.

unless it be performed in a pure air; and hence it is, that many manufacturers and artificers, who undergo great labour under cover, and who are often exposed to unwholesome effluvia, from the materials they work upon, are extremely unhealthy. 5. The higher and the more varied any air is, the more beneficial must be the exercise taken in it. 6. By exercise in the open air, the body becomes less sensible to atmospheric impressions; and hence various disorders may be prevented. 7. On commencing any exercise, it is best to begin with the more gentle, and then to proceed to the more violent; and as sudden transitions are always wrong, the rule should be reversed when exercise is given up. 8. In all exercises, attention must be paid, when it is practicable, to the preserving a proper carriage, or holding the body erect; and also to such a position of all the parts of the body, that none may be exposed to injury. 9. Exercise is more necessary in cold countries than in hot; the perspiration in the latter is sufficient without much exercise, but never in the former. 10. A good appetite after exercise is a proof that it has not been carried to excess. 11. Persons ought not to be irregular in the exercise they take, flying from one extreme to another. 12. After having taken exercise, we should not expose ourselves to a current of air, or rest out of doors, in a cool or exposed place, as upon a damp green plot; the sudden change of temperature, by suppressing perspiration, may prove extremely injurious. 13. After severe exercise, there is a great risk of catching cold, unless care be taken to prevent it, by rubbing the body well with a dry cloth, or flesh-brush, and by having a change of well-dried linen. 14. When persons are confined within doors, leading a sedentary life, they will not compensate for the want of regular exercise, by a hard ride or walk once a-week; for, being unaccustomed to bear such a degree of agitation, there is a great risk of their being thrown into disorder. 15. Exercise should always be accompanied with a due attention to temperance; otherwise, instead of an antidote it become a bane *. 16. Exercise should be repeated as often as it is found necessary, to keep the body in a healthy state. 17. It is not prudent to adhere strictly to any particu-

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* The opulent derive much less benefit from their diurnal exercise, because they counteract its good effects, by a luxurious indulgence of that appetite which their exercise has excited, superadding thereby the fever of digestion to the fever of exercise. See Adair's Medical Cautions, p. 406. Some sportsmen are more than usually abstemious on the days of hunting; and have experienced the benefit of living, on those days, on the plainest food, taken in moderate quantities.

lar kind of exercise. The best way is to take different kinds by turns, and to use that longest which is most suitable to the strength and constitution. 18. It is a good rule to vary the exercise [*]; even after a violent ride on horseback, walking for some minutes is beneficial. 19. It is remarked by Lord Bacon, that it is essential to long life, that the body should never abide long in one posture.

The following rules regard clothing and bathing, as connected with exercise. 1. In taking exercise, much attention should be paid to the ease and freedom of dress, particularly of the neck and joints, in order that the circulation may be permitted to move every where with freedom. 2. If young men, before they engage in any violent exercise, were to wear a flannel waistcoat next their skin, they would escape many illnesses;—even a cotton vest is better than linen. 3. After violent exercise, the under-clothing should be shifted as soon as possible, and dry warm linen, cotton, or flannel put on next the skin. 4. It is found very refreshing, after fatiguing exercise, to wash the feet in warm water, before going to bed. 5. Dr A. P. Buchan is of opinion, that immersion in warm water would be the best mode of averting the fatigue of a long journey, or the injurious effects of a boxing-match.

The following rules regarding exercise have reference to the mind: 1. Serious thinking, when taking exercise, very soon fatigues; but if the assistance of amusing thoughts, or the conversation of agreeable and intelligent friends be resorted to, the exercise will prove doubly useful. 2. One should never read when walking. 3. Those exercises which give motion to the body, and at the same time amuse the mind, such as bowls, tennis, &c. are found generally of much use. 4. It is very desirable to have some object in taking exercise, besides the mere exertion, such as to call at the house of a friend, to see some delightful prospect, or the like [†].

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[*] The late Earl of Panmure took constant and vigorous exercise. He was accustomed to ride and walk *alternately*, and found great benefit from that practice.

[†] A gentleman who lived at Hackney, near London, walked in every morning to set his watch at the Horse Guards. By having even this trifling object to accomplish, the exercise he took was doubly beneficial.

CONCLUSION.

We have thus brought to a conclusion our remarks, collected from various sources, on the subject of exercise *. Many circumstances have induced us to dwell upon it at greater length than was originally intended. The farther the inquiry advanced, the more important it seemed to become; and of all the points connected with the preservation of health, it was the one to which the least justice had hitherto been done by any author. The greater therefore was the benefit to be expected from the investigation. Even physicians have paid less attention to it, than it merits. Of this there cannot be a stronger proof, than is afforded by the celebrated Darwin, who, in his *Zoonomia*, or Laws of Organic Life, containing a catalogue of diseases, and the methods of cure, has only dedicated a few sentences to the subject of exercise †.

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* Vide Appendix, *Athletic Exercises.*

† See Darwin's Zoonomia, vol. ii. p. 690.

CHAP. VI.

ON SLEEP.

The difference between the condition of the body recently after death, and its state under the influence of sound sleep, is hardly greater than the difference between a man asleep, and the same person awake; nor does any thing perhaps, more strikingly illustrate the insignificance of life, than the fact, that man, with all his intellectual and corporeal endowments, passes, at least, a third part of his brief existence in a state of oblivion. It is natural to express surprise, that beings apparently so fond and so tenacious of life, should thus lose so large a portion of it in unconsciousness; yet it is a melancholy truth, that the happiest hours of nine-tenths of the human race are those which are spent in sleep. With that happy combination of genuine humour and philosophical truth, for which Cervantes was remarkable, Sancho Panza is made to say, " Well I know, that while I sleep I am troubled neither with fear nor hope, nor toil nor glory; and praise be to him who invented sleep, which is the mantle that shrouds all human thoughts, the food that dispels hunger, the drink that quenches thirst, the fire that warms the cold, the cool breeze that moderates heat; in a word, the general coin that purchases every commodity, the weight and balance that makes the shepherd even with his sovereign, and the simple with the sage; there is only one bad circumstance, as I have heard, in sleep, it resembles death, inasmuch as between a dead corpse and a sleeping man there is no apparent difference."

The nature of sleep is a subject of deep interest; but an inquiry into the cause of this phenomenon would exceed the limits, and be foreign to the object of such a work as the present. We may observe however, that there seems to be reason for believing, that when our bodily faculties are in repose, the mind continues, to a certain extent, active; and that the change produced by sleep has no effect on the involuntary functions of the body, or on the circulation of the blood. But without entering on the seductive field of inquiry, into which a consideration of the phenomena of sleep might lead us, we propose, at present, to confine ourselves to its effects on health; and to class our observations under the following arrangement: 1. The renewal of the vital energy produced by sleep:

2. The progress of the process of assimilation or nourishment which goes on more perfectly during sleep: 3. The expulsion of acrid matter, by means of perspiration, during sleep: 4. Its effect in the cure of disease and the restoration of health: 5. The effect of sleep in renewing the vigour of the mental faculties; and, *lastly*, We shall offer some miscellaneous observations connected with sleep.

1. *Sleep renews the Vital Energy.*—The fibres of the body can be acted on only when in an irritable state. During the day, irritability, or the power of being excited, is exhausted, by light, heat, sound, and above all, by bodily exercise and mental exertion. When exhaustion takes place, we should endeavour to repair the loss by retiring and taking repose in a recumbent position, free, as much as possible, from mental agitation, or any other exciting subject, until sleep supervenes, and restores the vital energy expended by previous exertions.

2. *Assimilation and Nourishment.*—During his waking hours, man is, more or less, constantly engaged in the exercise of his bodily and mental powers. The energies of the system are therefore directed to voluntary operations, and the different parts of the body are employed and exhausted in the occupations of life. During sleep, the condition of the body is entirely altered. The energies of the system seem then to be directed to the restoration of the losses sustained during the day; and it has been well observed by Lord Bacon, that the process of assimilation and nourishment is accomplished chiefly during sleep.

The necessary consequence of this is, that the growth of the body is promoted by sleep. It has been ascertained by experiment, that young plants grow in the night time, which is generally their time of sleep; and there is every reason to believe that young animals follow the same rule. Hence it is, that more sleep is necessary for children than for grown persons. During sleep also, there is a manifest relaxation of the fibres, and the body becomes more plump, so that any ligatures, if tight, are apt to become painful; and on that account, it is generally found advisable to loosen the collar, or any tight part of dress, on going to sleep *. There is, at the sametime, a filling out of the cartilaginous portions of the bones, so that a person is taller after a night's repose.

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* Collingnon's Inquiry into the Structure of the Human Body, p. 25. It is observed by Dr Rush, of the woodmen in America, a class of people who pass many months together in the woods, occupied in hunting, that some of the youthful persons, who affect particular hardiness, lie in their usual clothes, without any alteration, all night. But of this practice they soon experience the bad consequences, and find themselves obliged to conform to the practice of the

3. *Sleep promotes Perspiration.*—In sleep, all the voluntary motions which are of an exhausting nature cease. But those which are vital and involuntary, which, instead of being exhausting, serve to recruit our strength, continue in full force: such are, the motion of the alimentary canal, on which nutrition depends; the motion of the heart, which distributes the blood to every part of the animated frame; respiration, which serves so many useful purposes, and perspiration, by which the acrid matter of the body is expelled. Indeed, during sleep, nothing passes through the pores of a healthy person, but what is thoroughly digested, and fitted to be thrown off [*].

The experiments of Sanctorius have fully demonstrated the superior efficacy of undisturbed sleep, in promoting the important secretion of perspiration; insomuch, that a person sleeping healthfully, and without any unnatural means to promote it, will, in a given space of time, perspire, insensibly, twice as much as one awake. Undisturbed sleep is so great a promoter of perspiration, that in the space of seven hours, from forty to fifty ounces of perspirable matter, are commonly expelled from the body [†]. In hot climates, the quantity of perspiration discharged during sleep is very great; so much so, that a person sleeping even in the open air, with no other protection than a gauze musquito curtain, and no other covering than thin musquito drawers and a shirt, will, after a few minutes' sleep, be completely bathed in perspiration.

4. *Promotes the Cure of Diseases.*—In many diseases, a principal object with every physician should be the securing sound repose to his patient. Natural sleep is generally a decisive symptom of recovery; and indeed, many diseases cannot be cured, if the necessary rest be wanting. Since the days of Hippocrates, sleep has been accounted a most desirable and welcome guest in fevers, diminishing the rapid motion of the blood, and rendering the body cooler. Sleep is also of great advantage in checking extraordinary evacuations: hence its utility in diarrhœas and bloody fluxes. The comfort which sleep affords to persons afflicted with gouty complaints, pleurisies, and consumptions, need not be dwelt upon; and in deliriums and frenzies, it is the most effectual means of restoration. On the other hand, in asthmas, dropsies, and paralytic disorders, it is not beneficial beyond what is necessary for the restoration of nature [‡].

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older and more experienced hunters, who make a point of loosening all the ligatures of their dress, when they lie down to sleep.

[*] Townsend's Guide to Health, vol. ii. p. 71.

[†] See Medicina Statica, sect. 4. Aph. 1, 2.

[‡] Strother's Essay on Health, p. 370, &c.

For the recovery of health after sickness, it is indispensably necessary to attend to regularity of hours, as well as to the quantity of sleep. That balmy repose, which suspends the distressful sensations consequent on ill health, can only be obtained by habitually appropriating those hours to sleep which nature has pointed out as the best calculated for that purpose [*]. It may be observed however, that though the obtaining of sleep for a patient, ought to be the anxious endeavour of his physician, natural and refreshing sleep in a sick bed, is rather to be looked upon as a proof that the disease has been overcome, than to be considered as the means of cure.

5. *Restores the Vigour of the Mental Faculties.*—Intense thought very speedily exhausts the nervous energy; and it requires even longer sleep to recruit the strength and restore the spirits, when wasted by study, than by the effects of severe labour [†]. By sleep also, those violent passions, by which the frame is so much agitated and exhausted, are soothed; and after a refreshing sleep, we can reflect on our disquietudes with a calm mind, and again reconcile ourselves to the troubles of life [‡].

6. *Miscellaneous Observations.*--Among the indications and prognostics, (if we may use the expression), of longevity given us by the famous Cardan, that of being naturally a long and sound sleeper, is ranked as one of the surest [§]. This may be owing to the physical effects of sleep, which retards all the vital movements, collects the vital power, and restores

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[*] Adair's Medical Cautions, p. 417.

[†] Harper's Economy of Health, p. 20.

[‡] Willich's Lectures, p. 487.

[§] There are however, exceptions to this rule, and one in particular, the authenticity of which may be depended upon, having been transmitted to me by an intelligent friend, (John Gordon, Esq. of Swiney, in the county of Caithness). In a letter written to me by that gentleman, in December 1802, he gives an account of James Mackay of Skerray, who died in Strathnaver, in the year 1797, aged ninety-one. He was a strong robust man, about five feet six or seven inches in height. He was of a very cheerful disposition, and possessed a singularly neat, and concise species of wit. He was remarkable for the small quantity of sleep he required; and it is certain, that upon an average, during the whole year, he did not sleep above four hours in the twenty-four. His constitution was so strong and hardy, that neither wet nor any thing else affected him. Other examples of a similar nature are given by various authors: Gibbon says of the Emperor Justinian, "His repasts were short and frugal: on solemn fasts, he contented himself with water and vegetables; and such was his strength as well as fervour, that he frequently passed two days and as many nights without tasting any food. The measure of his sleep was not less rigorous: after the repose of a single hour, the body was awaked by the soul, and to the astonishment of his chamberlains, Justinian walked or studied till the morning light."—*Gibbon's Rome*, vol. vii. p. 406. Justinian died at the age of eighty-three.

what has been lost in the course of the preceding day. Indeed, if great watchfulness, by accelerating consumption, abridges life, a proper quantity of repose must tend to its prolongation.

The continual change from profound sleep to active exertion, is not only salutary, but when each is confined within its proper bounds, adds to the pleasure of life *. Every morning we enter into a new scene with renovated strength and delight;

> "Each night we die, each morn we're born anew;"

whereas, were there no interval of inactivity, life, with the common cares attached to it, would become insipid. And the celebrated Kant has justly observed, "Take from man hope and sleep, and you will make him the most wretched being upon earth." How absurdly then do those reason, who imagine, that by taking as little sleep as possible, they prolong their existence. They may spend, in a given period, (say sixty years), *more hours with their eyes open*, but they will never enjoy *life*, in the proper sense of that word, nor possess that freshness and energy of mind, which are the certain consequences of sound and sufficient sleep †.

We shall now proceed briefly to consider,—1. The number of hours required for sleep; 2. The period best calculated for that purpose; 3. The nature of the room in which repose should be taken; 4. The sort of bed or couch; 5. The dress or clothing to be used while asleep; 6. The proper posture for sleep; 7. The circumstances by which sleep can be disturbed or prevented; 8. The means of promoting sleep; 9. The propriety of sleeping during the day; and, 10. General rules respecting sleep; more especially those connected with infancy, youth, manhood, sickness, and old age.

SECT. I.—*Quantity of Sleep.*

IT has been proposed, that the twenty-four hours, into which the day is divided, should be thus allotted: eight hours for business, labour, or exercise; eight more for meals, pleasure, or amusement; and the remaining eight for sleep.

The celebrated Alfred divided his time into three portions, of eight hours each: one he employed for the refreshment and health of his body, by sleep, diet, and exercise; another was

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[*] See Mackenzie's History of Health, p. 383.

[†] Hufeland's Art of prolonging Life, vol. ii. p. 195.

devoted to the dispatch of business; and the remaining third to study and devotion [*]. But the life of Alfred, though eminently useful, was not long; so that his example cannot be adduced as a rule, to those anxious for longevity.

Indeed, nothing can be more absurd, than for any individual who wishes to accomplish great things, to deny himself the advantages either of sleep or of exercise. Let any one devote from seven to eight hours to sleep, and from three to four to exercise, and even four hours to meals and to amusement, and he will be enabled, from the refreshment which his body, his mind, and his spirits thus receive, to do a greater quantity of business, and to study with more advantage in the course of twelve months, than if he were to labour at his books for ten or twelve hours a-day [†]. Wesley, who lived to be eighty-eight years of age, and who said that he could command sleep, even on horseback, has published some curious remarks, regarding both the quantity of sleep which ought to be taken, and the means of ascertaining the proportion necessary for each individual. He admits, that one measure will not suit all men; some requiring considerably more than others; neither will the same measure suffice even for the same person, at all times. When a person is sick, or weakened by preceding illness, he requires more of this natural restorative than he does when in perfect health; and more sleep is necessary, when the spirits and strength are exhausted by hard or long-continued labour. Those therefore, who have attempted to fix one uniform measure of sleep for all persons, have not sufficiently considered, how widely different the system is in various individuals. Bishop Taylor, for instance, has very erroneously assigned only three hours in the four-and-twenty, as the general standard; and Baxter is almost equally mistaken, in supposing that four hours will suffice for any man. Wesley justly observes, that whatever may be done by extraordinary persons, or in some remarkable cases, where little sleep has sufficed, yet the human body can scarcely continue in health and vigour, without six hours' sleep in the four-and-twenty. During his long life, he never knew any individual, who retained vigorous health, for a whole year, with a less quantity of sleep than this; and he arrived at the conclusion, that women, in general, require more than men. Six hours therefore, is the standard which Wesley recommends, though we should be rather inclined to extend it to eight; which agrees with a celebrated French proverb,

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[*] Hume's History of England, vol. i. p. 97.

[†] The author has studied twelve hours a-day, for three months; but that was in the prime of life, and for a particular purpose; and he would not recommend it to any other person to try the same experiment, for any length of time. It appears from Cooper's Memoirs of Dr Priestley, that though he is supposed to have written more, and on a greater variety of subjects, than any other English author, yet it does not appear, that at any period of his life, he spent more than six or eight hours a-day, in business requiring much mental exertion. It is incredible indeed, what may be done at that rate, in the course of a life of a medium duration.

> Lever à cinq, diner à neuf;
> Souper à cinq, coucher à neuf;
> Fait vivre d'ans nonante et neuf.

As a means of ascertaining the quantity of sleep required by an individual, Wesley tried the following experiment: He had been accustomed to awake every night at about twelve or one, and to lie awake for some time; and he concluded, that this arose from his lying in bed longer than nature required. To be satisfied on this head, he procured an alarum watch, which awakened him at seven, nearly an hour earlier than his previous hour of rising; yet he lay awake as usual at night. The next morning he rose at six; but, notwithstanding this, he also lay awake the second night. The third morning, he rose at five; but, nevertheless, lay awake the third night. The fourth morning, he rose at four; finding he had now overcome the habit of lying awake during the night, he, for a period of above sixty years, continued to rise at that early hour; and, taking the year round, he never lay awake for a quarter of an hour together in a month *.

An old Latin proverb inculcates the necessity of seven hours' sleep in the four-and-twenty—

> Septem horas dormisse, sat est juvenique senique.

But it is certainly wrong to apply the same rule to the young and to the old.

Cadogan's maxim is, not to lie in bed above seven hours in summer, and eight in winter †.

Willich considers it the best means of spending the winter, in good health, and in useful labour, to go to bed at eight o'clock, and to rise at three or four o'clock in the morning ‡; such a plan, we believe, is not unusual at some of the foreign universities. Custom may reconcile us to most things; but

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* See the Duty and Advantage of Early Rising; a Sermon on Ephesians, ch. i. ver. 16, by John Wesley.

† Dissertation on the Gout, p. 94.

‡ Willich's Lectures on Diet and Regimen, p, 489.

in this country at least, it will be found much more healthful to use our candle light at night, when the house is heated, and not to rise till day light in the winter, than to pursue the system recommended by Willich.

On the whole, it is evident, that different ages and constitutions require different measures of sleep. From six to eight hours may be sufficient for youth or manhood, when the individual is strong and healthy; and from eight to ten may be allotted to infancy and old age. The infirm ought not to be limited even to these hours, but may be indulged in such a measure of sleep, as they find from experience to be necessary for refreshment.

It is proper to add, that nothing is more pernicious than too much sleep. It brings on a sluggishness, and dulness of all the animal functions, and materially tends to weaken the body. It blunts and destroys the senses, and renders both the body and mind unfit for action. From the slowness of the circulation which it occasions, there necessarily follows great corpulency, a bloated habit of body, and a tendency to dropsy, lethargy, apoplexy, and other disorders. Hence *Galen* calls sleep *the brother of death;* and says, that when carried to excess, nothing is more pernicious *.

Wesley attributes those nervous disorders, which have of late years become so frequent, to the custom of lying too long in bed. By *soaking*, as it is emphatically called, so long between warm sheets, he says, the flesh is, as it were, parboiled, and becomes soft and flabby. He relates the case of a young person, who was completely cured of a train of nervous disorders, by early rising, cold bathing, and moderate exercise. Wesley adds, that lying too long in bed occasions weakness of sight; and that, though, when young, his own sight was remarkably weak, yet, as he grew old, it became stronger, owing, he thinks, to his practice of early rising †.

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* Valangin relates the case of a young man, who, in consequence of too much sleep, and too little exercise, died of an apoplectic fit, at the age of 23: and Boerhaave mentions the case of a physician, who, by too much sleep, lost his intellects, and perished in an hospital.

† He might however, have been near-sighted, which improves as those affected grow older.

SECT. II.—*The Time proper for Repose.*

MANY authors have endeavoured to establish rules as to the proper time for seeking repose, and as to the period proper for sleep, or the natural subdivision of the day and night. It must be evident however, to every one who considers the subject with any attention, that although in some parts of the world, the day and night are pretty equally divided, in Great Britain, any rule of this kind cannot be made to apply to every season. And even in hot climates it will be found that, the natives are forced to act upon principles, totally different from those which, in higher latitudes, circumstances have rendered necessary. Thus, in a tropical country, the heat of the sun soon becomes insupportable, so that, in an hour or two after sun-rise, active employment in the open air is scarcely safe. As the day advances, the heat grows of course still more unsupportable; and by sun-set, although there is no longer the vertical heat to contend with, the surface of the earth has become so much heated, that exercise in the evening is often more oppressive than during the day. In such countries therefore, the period for active employment is from a few hours before sun-rise, namely, when the effects of the previous day's heat, on the surface of the earth, have been removed by dew and the absence of the sun, until an hour or two after sun-rise. It is by no means uncommon for the natives of India to take their quantum of sleep during the day; and the European residents in that country, generally take their sleep, between nine o'clock at night and four in the morning.

In the winter season of this and other cold countries, the system acted upon necessarily differs very completely from that just described. Within the tropics, the object of those engaged in active pursuits is to obtain a cool condition of the surface of the earth. In the colder countries, it is of very great importance to avoid extreme cold. Although the time during which the sun shines out, be in our winter very short, still even during the depth of winter, the sun has some effect, and man has been enabled to assist the sun in giving warmth to his habitation. In the earlier part of the morning therefore, when the cold damps of night have not been dispelled by the warmth of the sun, and while as yet the houses have not been heated by artificial means, the warm bed and comfortable bed-room are the safest place for man. Whereas in the evening, although the sun has early gone down, its genial effects remain, and at the same time the habitations of man have been rendered comfortable by artificial heat.

It must be evident therefore, that any general rule regarding the time proper to take repose, or for the period during which it is advisable for man to sleep, must be influenced by climate and circumstances, rather than by light and darkness.

There are several adages on the subject of sleep [*], and one of those, viz. that an hour before mid-night, is worth two after it, is by many considered a hygeian maxim. For ourselves, we are very much inclined to doubt the fact, particularly in the winter season, during which we are persuaded that the best time for sleep, is between twelve o'clock at night and eight in the morning; and if these hours are to be encroached on, we have little doubt it will prove less injurious to health to protract the time of going to bed, than to rise earlier in the morning [†]. It is right however to state, that experiments have been tried in order to ascertain whether night or day is the safest for exercise. Thus two colonels of horse in the French army, had differed as to the periods of the day which were best fitted for marching and for repose; and as it was interesting in a military point of view, to have the point settled, they obtained leave from the commanding officer to try the following experiment: One of them, although it was in the heat of summer, marching during the day, and resting at night, arrived at the end of a march of 600 miles, without the loss of either man or horse; but the other, who marched in the cool of the evening, and during part of the night, at the end of the same march, had lost most of his horses, and some of his men [‡].

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[*] For instance,—*surgere dilucolo saluberrimum est*,—or, to rise with the dawn, is most conducive to health; also the doggrel rhymes so often repeated,

Early to bed, and early to rise,
Makes a man healthy, wealthy, and wise.

Dr Franklin has written a most ingenious essay, pointing out the advantages of early rising, *with a view to economy*. It is called "*An Economical Project.*" He makes a calculation of the saving that might be effected in the city of Paris alone, *by using sunshine instead of candles*. He estimates that saving at 96,000,000 of French livres, or L.4,000,000 sterling. This paper originally appeared in one of the Paris papers, in the year 1784, and is translated into English, and printed with his other essays.

[‡] Dr Lind states, that a clergyman in the Wolds of Essex informed him, that early risers were the shortest livers; probably because exposed to unwholesome morning fogs. Dr A. P. Buchan, on the other hand, observes, that he can perceive no reason why the dews of the morning should be considered as more unhealthy than the fogs and vapours of the evening. Pure moisture is not unwholesome.

[‡] Valangin on Diet, p. 276. He adds, that in order to prove the advantage

This is a solitary experiment, and can hardly be considered conclusive: at best it only proves, that, in France, the early part of the night is not the best time for active exercise in the open air.

The great point however, is regularity. This word, in fact, applies to every operation of the human system, and in a particular manner to sleep; for a person may bring himself to take his repose with advantage, at almost any period in the twenty-four hours, who might suffer by endeavouring to force himself into the usual habits of others. The only rule we shall lay down on this head is, that from six to eight hours of continuous sleep should be taken, and that the time best calculated for the purpose is from twelve o'clock at night to eight in the morning in the winter time, and from ten to six in the summer. This rule of course applies to adults;—the young, the aged and the sickly, require both earlier hours, and a longer period for repose *.

SECT. III.—*The Bed-Chamber.*

As the bed-chamber is a place in which we pass a large portion of our lives, we should pay greater attention to it than is usually done. The following particulars merit attention: 1. The situation of the bed-room: 2. Its size: 3. The mode of ventilating it: 4. The temperature: 5. The fire-place, &c.

1. A bed-chamber ought not to be situated on the ground-floor; and an elevated apartment is particularly recommended by Tissot, to literary and sedentary people: at the same time, a room on the ground-floor may not be injurious, where the soil is gravelly, and the situation dry. Some recommend,

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of sleeping in the night, and reserving the day for labour and action, we need only compare the looks and the healthy state of people in the country, who follow that plan, with those of the inhabitants of towns, who keep awake till midnight, and pass a corresponding proportion of the following day in sleep, and who are always wan, pale, and often ailing. Many persons allege, that by going to bed at regular hours, they must exclude themselves from all fashionable society; but, as Adair justly observes, they have the alternative, either to be fashionably invalids, or out of fashion and in health.—*Medical Cautions*, p. 418.

* Hume observes, that it is hard to tell, why, all over the world, as the age becomes more luxurious, the hours become later. Is it the crowd of amusements that push on the hours gradually; or, are the people of fashion better pleased with the secrecy and silence of nocturnal hours, when the industrious vulgar have all gone to rest? In rude ages, men have few amusements or occupations but what day-light affords them.—*Hume's History of England*, vol. iv. p. 464.

for the sake of coolness, bed-rooms that front the north; but others think it better, that they should be exposed to the early rays of the sun.

2. The sleeping apartment should be airy, large, and lofty. Nothing can be more imprudent, than the conduct of those who, having splendid houses, prefer sleeping in small apartments. There cannot indeed be a greater absurdity than turning the whole of what should properly be the sleeping apartments of a house, into public rooms. People who live for the fashionable world, deprive themselves of a source of health and comfort required every day of their lives, for the gratification of their vanity, by the occasional display of magnificent apartments.

3. Freely admitting air into a bed-room during the day, is of the greatest possible consequence. This rule ought to be acted upon all the year round—the windows being opened as soon as the bed-room is vacated—the bed-clothes should be turned down, and the air should be permitted to circulate freely under the bed.

The state of the weather however, may render it unsafe to admit the external air into a bed-room; and in cold damp weather, it will be better to ventilate the room by means of a fire during the day.

It may be even advisable to admit the external air during the night; and many invalids find this indispensable. The wind however, should not be allowed to blow directly on the sleeper [*], but ought to be intercepted by a shutter or curtain; or what is better, the window of an adjoining apartment, and the door of communication, may be left open. Except in cases in which smoke is apt to descend a chimney, smoke-boards, dampers, and other means of preventing the free passage of air by this outlet, are not advisable.

One of the best means of introducing fresh air into a house, or purifying the air of any particular apartment, is by means of ventilators. These were invented by the celebrated Dr Hales. This excellent contrivance consists of small moveable wheels, made of brass or sheet iron, which are placed in one of the window panes, and are set in motion by the pressure of the current of external air endeavouring to gain admission, when the air in the apartment is of a higher temperature than the external air; and by a contrary current, when the temperature of the apartment is lower than that without. But instead of using ventilators, Dr Adair recommends, that the casements of all public rooms, and indeed of private houses, should be so constructed, that the upper division shall slide down; and that a certain portion of them, according as the room is more or less crowded, may be at least occasionally kept open.

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[*] See Adair's Medical Cautions, p. 62, where a case is described, which strongly tends to prove the justness of these observations. Some recommend admitting fresh air by means of Venetian blinds. This is only calculated for very hot climates.

It is proper however, to observe, that though pure air during sleep is so necessary to health, yet the sudden admission of it into a bed-room, may prove dangerous. Keeping open the windows of any bed-room during the night therefore, ought not to be commenced without the greatest caution *.

4. It is imprudent to sleep in a very warm bed, or in a very heated apartment; for perhaps nothing is so likely to bring on a delicate state of health, or to increase maladies already formed, as the relaxing and weakening effects of the too common anxiety to be comfortably warm during sleep. Exposure to undue temperature during the night however, is not uncommonly the result of mere want of consideration; the bed being cold on first going into it, the flannel dressing-gown is added to the usual bed-clothes, and the person falls asleep, without being aware that he has made an unnecessary addition to an overplus of bed-clothes. Not only is additional flannel during the night improper, but the flannel garments used during the day should, as a matter of course, be thrown off at bed-time.

As a general rule, it may be stated, that from 50° to 60° of temperature, is the most wholesome for a bed-room.

5. It is safest to lay it down as a general maxim, that a fire ought never to be kept burning during the night in a bed-room. Of course, in cases of sickness, and where the bed-room is large and airy, a fire during the day is not only a comfort, but is indeed useful, in circulating the air, and ventilating the room, while the window cannot safely be opened.

With us, it is generally a source of anxiety to be enabled to keep up the temperature of our bed-rooms. In hot climates, the reverse is the great object; and accordingly, within the tropics, the bed is freely exposed to the wind, and every means of admitting air during the night is resorted to. The couch is even removed, in very hot nights, to the verandah, or

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* In Valangin's Treatise on Diet, p. 287, there is an instance of a young lady of beauty, fortune, and great merit, on the eve of being married, who died of an inflammatory sore throat, which she caught, in consequence of a window in her bed-room being left open by mistake, in the heat of summer.

into the open air. We may observe however, that many of those who have had experience of hot climates, consider it highly dangerous to expose the body to a thorough draught of air during sleep. This was one of the maxims of the late Sir Thomas Munro. We understand indeed, there is reason to believe, that the jungle, and other fevers, so destructive in the East, are frequently traceable to imprudent exposure to unhealthy winds during sleep. In some situations in India, just as in the Pontine marshes near Rome, it is certain death to go to sleep exposed to the external air.

It is hardly necessary to observe, that damp bed-rooms, or damp bed-clothes, must be most carefully avoided by all who have any regard for the preservation of their health.

Sect. IV.—*Bed, or Couch.*

The progress of improvement, in the article of beds, or couches for repose, might be worth tracing, as a curious object of inquiry.

In the celebrated poems of Ossian, the mode of sleeping, when men must have been easily accommodated with a situation for repose, is thus described:

Connal lay by the sounding stream,
Beneath a leafless oak.
Upon a moss-clad stone
The chief of heroes reclined his head *.

In the houses of the Russian peasantry, there are no beds, but they have broad benches, on which they sit in the day-time, and sleep at night.

In England and in Scotland, during the feudal period of our history, the castles even, were not always accommodated with a number of rooms; and it was often necessary for the greater number of the inmates to sleep in the great hall, on straw, brought in for that purpose, and swept away next morning †.

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* This is taken from the new translation of Fingal, by the Reverend Thomas Ross, which, it is hoped, will soon be published, as it is infinitely superior to the version by Macpherson, and more likely to give to the world a just idea of the genuine excellencies of the Celtic bard.

The hardy chief upon the rugged rock,
Washed by the sea, or on the gravelly bank,
Thrown up by wintry torrents roaring loud,
Fearless of wrong, reposed his weary strength.
Cowper.

† From the following account, given by Hollingshed, we may judge of the an-

The use of boards, or other means of raising the body from the damp ground, would, in the progress of invention, naturally lead to the contrivance of a frame or bed-stead, and loose straw or heath would give way to a mattress or bedding. The box-bed, still common in some parts of Scotland, in which the bed is completely separated from the room, was a natural contrivance, where there was but one apartment, the doors and windows of which were ill calculated for keeping out cold winds.

The bed, according to the present fashion, mounted on pedestals, with a cover above, and surrounded with moveable curtains, was derived from the East *; and thence gradually introduced into the southern and northern parts of Europe †.

The climax of luxury, in this article of furniture, was the pensile, or suspended beds of Asclepiades, which have been taken notice of in the preceding chapter, and by which, if necessary, the person might be rocked to sleep. Sailors use pensile beds, but for a different reason. The sea-cot and hammock, are for steadying the bed, during the rolling of the ship, not for rocking the sailor to sleep.

An improvement, recommended by Dr Franklin to those who can afford so great a luxury, is to have two beds in the bed-room, so that the hot bed may be left for a cool one.

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cient mode of sleeping in England: "Our fathers, and we ourselves, have lain full often upon straw pallettes, covered only with a sheet, under coverlets made of dagswain or hoperlots, (I use their own terms), *and a good round log under their head instead of a bolster.* If it were so, that the father or the good man of the house, had a mattress or a flock-bed, and thereto a sack of chaff to rest his head upon, he thought himself to be as well lodged as the lord of the town. So well were they contented. Pillows, said they, were thought meet only for women in childbed. As for servants, if they had any sheet above them, it was well; for seldom they had any under their bodies, to keep them from the prickling straws, that ran oft through the canvass, and razed their hardened hides." —See Hume's History of England, vol. iv. notes, p. 462.

* The Greek beds were composed of girth bottoms, and were ornamented with quilts, coverlets, and probably had some sort of bolsters. There do not appear to have been any pavilions or testers; nor were curtains anciently used in Greece. Homer makes no mention of them. The Greeks undressed when they went to bed. Their bedsteads, even in the time of Homer, were ornamented with gold, silver, and ivory. In the field, the Grecian soldiers lay upon skins spread upon the ground; they covered themselves with carpets, or other stuffs, which served for blankets; they afterwards had coverlets put above all.—*Goguet's Origin of Laws*, vol. ii. p. 385.

† Of these beds, there are three principal sorts: 1. The English; 2. The French; and, 3. The *Polonaise*, with a dome top, calculated for state. The English bed might be much improved, by having the top raised from the rest of the bed, and a clear space left between it and the curtains, for the admission of fresh air.

Shifting from one bed to another, proves extremely refreshing, and frequently procures sleep, to persons ill of a fever. A bed sufficiently large to admit of a removal to a cool part, may answer the same end.

The materials of which the bedding is composed, are of very considerable consequence, with a view to health. The articles used for stuffing beds, in this country, are chaff, straw, sea-grass, horse-hair, and feathers. Horse-hair mattresses and feather-beds, are generally preferred by the richer orders.

The observations of Locke upon this subject are extremely judicious. He remarks, that the bed should be hard, for strengthening the body; whereas, being buried every night in feathers, melts and dissolves the body, is often the cause of weakness, and the forerunner of an early grave. Warmth about the kidneys, the necessary consequence of sleeping on down beds, is very apt, he thinks, to produce the stone, and to occasion other disorders *.

We have already repeatedly stated, that to sleep cool, is an hygeian maxim of the greatest importance; and with this view, nothing deserves more attention than the nature of the bed immediately under the body. Many people think, that the cold weather of winter, is a good excuse, for a soft and hot feather-bed †; but in modern houses, in which the doors and windows are so completely fitted, that scarcely a breath of fresh air reaches the bed-room during the night, there is not much reason to dread injury from too cool a bedding; and we have no hesitation in saying, that a hair-mattress is, in every point of view, preferable to a feather-bed. As however, the hardness of a mattress, if used alone, is painful to those who have been accustomed to a soft bed, it is both safe and agreeable, to place the mattress over a feather-bed, by which means, much of the softness of a feather-bed is obtained, along with the coolness of the mattress.

The bolster ought to be elastic and soft; and the best pillow is one thinly stuffed with hair; indeed, the same arrangement of feathers under hair, which we have recommended for

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* Locke's Treatise on Education, sec. 22.

† The use of feather-beds, excepting in cold climates and seasons, is highly injurious. It is certainly hurtful in many diseases, and some are actually occasioned by that pernicious practice. Feather-beds imbibe the perspired vapours thrown out of the body; and unless they are frequently and carefully shaken, aired in the sun, and provided with a new covering, these noxious vapours may be re-absorbed, to the great injury of the health. Such beds should be exposed every morning to the open air, before they are made up.

the bed, should be resorted to with regard to the bolster and pillow.

One of the most recent contrivances for a bed, is what is called the hydrostatic bed. A trough of water is covered with cloth rendered impervious by means of caoutchouc, and thus a very soft bed is produced, which, it is supposed, will prove useful to bed-ridden invalids.

Air pillows are much in use, particularly in travelling. They afford a pleasant change from the hard cushion of the carriage, and are also useful as pillows for the head during long journeys, or to protect any other part of the body which is leant on.

An improvement recently made in the cushions of chairs and sofas, has been introduced in the manufactory of beds, viz. spiral wire springs, which are said to produce a cool, elastic and delightful bed.

The height to which modern beds are raised, although perhaps wholesome enough, is scarcely to be commended. It is indeed absurd to see steps used for mounting into a bed, out of which there is nothing to prevent a person from rolling, at the risk of broken bones, in the restlessness of a feverish sleep. Nor is it by any means uncommon for the aged and infirm to suffer serious injury in mounting or descending from these elevated beds.

We have already expressed our disapprobation of the very common habit of using a load of bed-clothes. Few things are more injurious to the young. The aged however, may suffer from an opposite fault; and there is reason to believe, that they have sometimes died, in cold weather, from the effect of scanty bed-clothes. Macklin, the player, when he got old, always slept in blankets, for the sake of warmth; and Dr Chovet of Philadelphia, who lived to be 85, slept in a baize night-gown, under eight blankets and a coverlet, in a stove-room, for many years before he died *. We can scarcely however, consider this as a very advisable practice; and should not recommend sleeping in blankets, unless there be no other means of escaping damp sheets. Linen sheets are much in fashion in this country. We are inclined to consider cotton sheeting as more healthy, and more agreeable. In hot weather it absorbs insensible perspiration, and in winter is less chilling on first getting into bed.

4. The use of bed-curtains has been objected to; and in a well-built house and comfortable bed-room, they certainly are

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* Rush's Medical Inquiries, p. 317.

scarcely necessary, and ought never to be used during summer. In an ill-finished cold house however, and in the depth of winter, the bed-curtains ought to be partially drawn; but, particularly when more than one person sleeps in it, the bed ought at no season to be completely surrounded with thick curtains.

Warming the bed, except in cases of sickness, or morbid chilness of the system, ought not to be resorted to. We may remark, that when the warming-pan is filled with charcoal, it deteriorates the air of the bed-room; when with hot water, it not unfrequently leaks in the bed, which accident, from the warmth, is not discovered till too late. These circumstances should be kept in mind when the warming-pan is used.

The bed should never be placed close to the wall, more especially if there be any dampness in the latter; nor should a bed be placed near the wall in a country where lightning is frequent, as the electric fluid is apt to take its direction along the walls, and may not touch any thing that is not close to them *. Beds shut up in confined alcoves are extremely objectionable.

The greatest care ought to be taken to beat, and thoroughly to air any bed, in which sick persons have lain; and the bed of those who have died of contagious disorders, ought to be washed with potash and boiling water, or if not valuable, it may be burned.

SECT. V.—*On Night Clothing.*

ALTHOUGH man, in an uncivilized state, does not think it necessary to change his dress at night, few things, with a view to health, are more important than a complete change of garments on going to bed. The night clothes therefore, should be wholly different from those worn during the day. Even the flannels worn next the skin should be thrown off.

Perhaps it is best to have the night clothes made of cotton. Thus, an under vest of checked muslin may take the place of the flannel vest, and over this there should be worn a long cotton night-shirt. Some have thought a night-cap unnecessary; but it is both a cleanly and a useful piece of dress, and should be generally used: at the same time, we are far from recommending for general use thick and hot night-caps †.

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* Willich's Lectures on Diet and Regimen, p. 501.

† Cleland, in his Institutes of Health, p. 3, says, that to sleep bareheaded is,

It is of consequence that the sleeping dress should be extremely loose about the body, and all tight collars, wrist-bands, &c. should be left unbuttoned. Persons who are chilly in the lower extremities, or liable to pains in the stomach, may sleep in woollen socks or short stockings, in cold weather.

As to the neck, people generally are accustomed to lay aside their stocks or neckcloths when they go to bed. A contrary practice, however, is recommended by an intelligent correspondent, (the Baron Edelcrantz), to those who are liable to sore throats. He approves of the use of a thin collar of fleecy hosiery in the night *.

SECT. VI.—*Posture.*

WHEN about to sleep, most animals choose a posture which gives the various parts of the body complete repose, and man instinctively pursues the same system †. We should not therefore attempt to lie in a forced or constrained posture, but almost horizontal, the head being a little raised. Nothing is more prejudicial than to sleep in a half-sitting posture. Sleep not on your back, *or in the posture of a dead man*, is a maxim attributed to Confucius. Hippocrates particularly condemns lying on the back, as likely to occasion the night-mare, apoplexy, disorders of the kidneys, and other complaints. To sleep on the stomach is considered extremely injurious to the eyes, to the lungs, and to the abdominal viscera. The best position certainly is, to lie upon one side, the body straight, but the limbs bent, by which they are more at ease. When tired, our posture should favour those limbs which have been particularly exercised. Valangin recommends lying on the right side, when one goes first to bed, particularly when there is yet any food in the stomach; but, after the first nap, or when the stomach is empty, to lie on the left side, changing postures when necessary; and he advises, that when people wake in the night,

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a dangerous experiment; and contends, that it is necessary to keep the head warm, especially during sleep.

* Code of Longevity, vol. ii. Appen. p. 27.

† The camel places his head between his fore feet; the monkey, like man, lies on his side; most birds sleep with their head under one wing. The psittacus garrulus, (a species of parrot), hangs by one foot on the branch of a tree: and some spiders, and other insects, suspend themselves by their fore legs. Some horses never lie down; and even those accustomed to lie down, will sometimes sleep on their feet.—*Smellie's Philosophy of Natural History*, p. 402. Taken from the Amœnitates Academicæ of Linnæus.

they should stretch themselves in bed, to render the circulation of the blood freer *.

In India, Europeans use a pillow for their legs in bed; a long round hard bolster, called a *winch pillow*, which answers the double purpose of proving a source of great comfort to the legs, and renders the bed cooler.

The arms should be under the clothes in cold weather, and care should be taken not to fold them round the head. It is imprudent to hide the head under the bed-clothes.

We ought to endeavour to sleep with the mouth shut. Besides other inconveniences attending a contrary practice, the teeth are apt to be injured by the air continually passing through them. This practice has a tendency also to make the mouth and throat too dry, which is always unpleasant, and in cold weather may occasion sore throats †.

Sleeping in a sitting posture should never be thought of, except for a short nap after a meal; or when, unfortunately, the individual is affected with disease, as asthma, water in the chest, or any affection attended with difficulty of breathing.

SECT. VII.—*Preventives to Sleep.*

THIS branch of the subject may be divided into, 1. Those circumstances which prevent our falling asleep; and, 2. Those which disturb it afterwards.

1. We may be prevented from sleeping, by improper diet, bad digestion, violent emotions of the mind, hard study, &c.

The drinking of tea, coffee, and any thin or weak liquor, immediately before going to bed, will, with many people, retard sleep.

A full stomach occasions restless nights; and that difficulty of falling asleep, so often ascribed to the vapours, is generally owing to crudities which are undigested, and not carried off by proper exercise. Whatever therefore disturbs digestion must injure sleep.

The Chinese have paid very particular attention to the subject of sleep; and, among other maxims, strongly recommend, that all thoughts and circumstances likely to shock the imagination, or leave impressions that may disturb our rest, should be avoided *.

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* Valangin on Diet, p. 288. Dr Franklin recommends the limbs being placed, so as not to bear inconveniently hard upon one another, as for instance, the joints of the ancles; for though a bad position may at first give but little pain, and be hardly noticed, yet a continuance will render it less tolerable, and the uneasiness may come on during sleep, and may disturb the imagination.

† See Hart's Diet of the Diseased, p. 337.

Rest at night is often prevented by too intense an application to study, gambling, or to other exercises of the mind, when the object applied to is not varied, so as to give the mental faculties some relaxation.

2. Sleep may be disturbed by a number of incidental circumstances; as, 1. Noise; 2. Light; 3. Sleeping in a new apartment; 4. Having slept during the day; 5. Repelled perspiration, consequent on improper covering; 6. Cramp; 7. Mental uneasiness; and, 8. Dreams, Night-mare, and Somnambulism. The phenomena attending dreaming alone appear to require particular discussion at present.

Dreaming.—The mind, as affected by the state of the body during sleep, presents a peculiarly interesting subject of study. In this state the intellectual powers seem to assume new characters; and the sleeper finds himself acting on principles entirely different from those which influence his conduct while awake. Dreaming is the phenomenon which makes us aware that the mind is, to a certain extent, active, while the body reposes; and to any one who may doubt the deep interest which this subject possesses as a branch of the philosophy of the human mind, we earnestly recommend a perusal of Dr Abercrombie's late work on the Intellectual Powers †. One of the most interesting portions of that valuable work, comprehends the section on Dreaming, Somnambulism, and Insanity. It is a remarkable circumstance, that in these three states, the mental phenomena are nearly similar. Thus we find that dreams call up reminiscences of which the waking man is wholly unconscious; that somnambulism develops intellectual powers, of the existence of which there is no trace while the person is awake; and that although no recollection of the occurrences of the dream may remain, yet the next fit of somnambulism restores the whole of it. So also in certain descriptions of insanity, the maniac acquires knowledge, (of languages for example,) which is lost on his recovery, but which, by a relapse, he reacquires; or the reverse may happen, and insanity may place in abeyance accomplishments which revive on recovery. The same thing happens in intoxication: a porter loses a parcel while drunk, and in his sober moments has no recollection about the matter; he gets drunk again, and circumstances are immediately recalled to his memory, which enable him to find the lost parcel.

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* It is said, that one's pillow is the best of counsellors; and it is certain, that where any particular point requires deep and serious reflection, the quiet of the night, and the certainty of not being disturbed, affords the very best opportunity for it; but the time for repose should be as seldom as possible interrupted in this way, as such a habit becomes unconquerable, and is extremely injurious.

† Inquiries concerning the Intellectual Powers, and the Investigation of Truth, by John Abercrombie, M.D. F.R.S.E. Fellow of the Royal College of Physicians of Edinburgh, &c. &c. 3d edit. 1832.

The conclusions deducible from these phenomena are, that the mind is endowed with powers over which, in certain states of the body, it possesses no controul. Dreams therefore may afford us invaluable aid in the study of the philosophy of mind; and in the solution of some of the most perplexing difficulties in which that study has involved metaphysicians. These however, are speculations which are foreign to the proper object of this work; and having indicated them as possessing lively and instructive interest, we shall return from what may seem a digression, and consider dreams, night-mare, and somnambulism, as more immediately connected with bodily health and disease.

Much *sensible* dreaming, unless where constitutional, may be symptomatic of indigestion; or a proof that too much sleep is taken; or indicative of the existence of some serious malady. A restless night and frightful dreams, unaccompanied by serious illness, are almost infallible indications that the stomach contains food which remained undigested at bed time, or that there has been some excess or irregularity of diet. Such dreams therefore, become useful premonitory symptoms; and the person so forewarned has always within his own power the means of averting what may otherwise prove a formidable attack of illness. To remove the cause of such dreams, temperance in diet, and if necessary, a well-managed course of aperient medicines, will in most cases suffice.

The dreams occasioned by over indulgence in sleep, are usually not unpleasant. We are disposed to regard those dreams, as peculiar to that state of drowsy transition from profound sleep, to what some metaphysical writers have termed *complete vigilance* *. This is a condition into which persons who indulge too much in bed, are very apt to fall; and such dreams, or an indulgence in the state which produces them, very often counteract the good effects of sound sleep, and leave the dreamer unrefreshed by his lengthened repose. In these cases, less sleep will produce more benefit; and a sufficient degree of self-denial, will always enable the victim of this lazy habit to shake it off, and to rouse himself for the exertions of active life. Indeed the evil under consideration is almost uniformly the result of idleness and inactivity, and is unknown to those who, either by professional avocations, or intellectual energy, are denied this indulgence.

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* See Dugald Stewart's Elements of the Philosophy of the Human Mind, vol. i. cap. v. § 5.

Night-Mare.—Darwin observes, that great fatigue, with a full supper, and much wine, is apt to produce this complaint. The remedies are,—the use of bark; little or no supper; and to sleep on a hard bed, with the head raised. By the hardness of the bed, the patient will be apt to turn himself more frequently, and will not be liable to sleep too profoundly, or lie too long in one posture. If more be necessary, he ought to be frequently awakened by an alarum clock *.

Somnambulism is a species of dreaming, attended with very serious danger to the dreamer, and may be the source of fatal alarm to those resident in the house with him †. Every endeavour therefore, must be made to check a propensity to sleep-walking; and for that purpose, no time should be lost in resorting to medical advice.

SECT. VIII.—*Means of promoting Sleep.*

AN intelligent author has observed, that sleep cannot safely be dispensed with for any length of time. If it does not pay its accustomed visit, the whole frame of the unfortunate individual is thrown into disorder, his appetite ceases, his strength fails, his spirits become dejected, and he is reduced to a state of misery. It is often in vain that every means are thought of to induce repose; it is in vain that all light is excluded, that all sounds are removed, that books of entertainment are read; the feverish body or the busy mind refuses rest:

> " And in the calmest and the stillest night,
> " With all appliances and means to boot—"

the blessing is denied ‡. In the celebrated case of Lord Littelton, as narrated by his physician Dr Johnston, the want of sleep seems to have occasioned his death; and Tissot proves, by a multitude of facts, that intense thought destroys an aptitude to sleep; and that it much imports studious characters to limit their learned labours to proper hours, to support their strength by intervals of exercise in the open air, and, above all others, to solicit sleep, by a seasonable dismissal of business and of care.

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* Zoonomia, vol. ii. p. 400.

† In Smellie's Philosophy of Natural History, p. 391, many instances are detailed of persons of this description. In Adair's Essay on Diet and Regimen, p. 75, an extraordinary instance of somnambulism is narrated. See also " Abercrombie's Intellectual Powers" on this interesting subject, 3d edit. p. 288.

‡ Johnston's Medical Essays and Observations, Case vii. p. 232.

The various circumstances which contribute to sleep, may be classed under the following heads: 1. Air; 2. Labour, or exercise; 3. Diet; 4. Medicine; 5. Useful habits; 6. Machinery; 7. Heat; 8. Cold; 9. Electricity; 10. Regularity of hours; and, 11. Miscellaneous circumstances.

1. Fresh air has a particular tendency to promote sleep; hence, people when travelling, not with too much rapidity, and with as much attention as circumstances will admit of, to the regularity of their meals, generally have sound sleep.

We have already enlarged on the many benefits resulting from freely ventilated bed-chambers, and we may here add, that want of sleep may be remedied simply by admitting fresh air into the bed-room during the night.

2. A sufficient quantity of muscular exertion during the day greatly contributes to sleep. When however, it exceeds the power of the individual, there will follow a too violent circulation of the blood, and sleep will be interrupted.

3. Attention to diet is, as already stated, necessary for procuring sleep. The stomach must not be oppressed, nor ought the powers of digestion to have too much to do after going to bed. Lettuce, as already mentioned, has an anodyne quality. Sanctorius recommends garlic as a soporific; also marmalade made of quinces *.

4. Of all sedatives, opium is certainly the most powerful hitherto discovered; but, like other narcotic medicines, when improperly administered, it proves a deadly poison, and should never be resorted to but under the physician's directions. Narcotics, even outwardly applied, abate pain, and are favourable to repose.

As accidents of poisoning by laudanum are by no means uncommon, it is right that we should offer a hint on the means to be pursued when no medical man is at hand. The principal object must be to empty the stomach; the readiest emetic in most houses is mustard. A table spoonful of common house mustard mixed with water, should be without delay adminis-

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* Medic. Stat. sect. iv. aphor. 60.

tered, and the throat should be tickled with a feather, to forward the effect of the emetic. It is a common opinion that vinegar counteracts the baneful effects of opium. But as it assists its digestion, this is only true, after the stomach has been emptied by vomiting; for then vinegar and other vegetable acids act as antidotes to the portion of the narcotic which has been absorbed by the stomach. One effect of narcotic poisons, that of producing a paralytic condition of the stomach, is much against the success of household treatment, in a case of poisoning by laudanum, and it is in these cases that the stomach-pump may be resorted to with the best prospect of success. After the stomach has been thoroughly washed out by means of this instrument, vegetable acids should be administered.

5. A number of practices have been recommended, as likely to promote sleep; some to be observed before going to bed, and some after.

There is not a better plan, than to walk up and down the parlour or bed-room some time before going to bed. *After supper walk a mile*, is an excellent rule, and may be observed in the house as well as out of it. Walking about, before going to rest, particularly with pleasant companions, is infinitely better than lolling in a chair or couch; and certainly is a better preparation for repose. This maxim, although but little acted on, cannot be too often inculcated *.

Listening to music, is a good preparation for repose, or reading, if not on too interesting a subject.

The Chinese recommend it as an important rule, to wash the mouth, and to brush the gums and teeth before going to bed. This gives the mouth and tongue an agreeable freshness; and, though the practice may be at first a little troublesome, it will soon become habitual and agreeable, especially as it has a tendency to promote sound sleep.

The Chinese also consider it a healthy custom, and one tending to promote sleep, when a person is undressed, to rub smartly with the hand, or flesh-brush, the soles of the feet, and then to rub each toe separately; this greatly promotes insensible perspiration †. Indeed, there is not a better rule, than to rub both the arms and legs smartly with a flesh-brush, before going to bed.

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* Cato was accustomed to walk about after supper, before he endeavoured to settle himself to sleep.

† See the Art of Medicine among the Chinese.—Code of Longevity, vol. iii. p. 236.

Sleeping on a pillow of hops, is recommended as an excellent mode of procuring sleep. It may prove so occasionally, but soon loses its effect.

It was formerly a custom, in the more remote parts of Scotland, to employ bards to rehearse to great men the verses of distinguished poets; and it was by these means, that the poems of the celebrated Ossian were so long preserved. It is sometimes a practice, when sleep cannot otherwise be obtained, to be read to, or to read, until drowsiness comes on; this is a very bad and often a dangerous custom, and, when once begun, can hardly be got rid of.

Boerhaave, on some occasions, in order to procure sleep to patients, directed water to be placed in such a situation, as to be continually dropping on a brass pan.

> Fontesque lymphis obstrepunt manantibus
> Somnos quod invitet leves.

Any thing indeed that catches the attention, for instance soft music, the Æolian harp, or some other monotonous sound, as the murmuring of a rivulet, the humming of bees, the incessant click of a clock or watch, will promote sleep *.

If these fail or be not at hand, the effect of conning over some task which in childhood was apt to create sleep, or reciting a long passage, from any ancient or modern author, or even counting slowly from one onwards as long as may be necessary, will often be found effectual in producing sleep; for by such means, the attention is diverted from uneasy thoughts, and the person falls into a state very nearly allied to sleep, even before that state supervenes †.

A modern philosopher affords an instance of how much may be effected by forcing the thoughts into a new channel. Kant, finding it impossible to procure sleep at the accustomed hour, and suffering also from painful attacks, resembling cramps, summoned up, he says, his stoic principles, and by directing his attention to some indifferent object, such as the history and writings of Cicero, not only got the better of the thoughts which kept him awake, but even his painful sensations soon became blunted, and were finally overcome by drowsiness; and this remedy, he adds, he could at all times repeat with success, whenever his sleep was interrupted by similar attacks ‡.

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* Code of Longevity, vol. ii. Appendix, p. 46.

† Dr Gregory mentions among the inducers of sleep, listening to a heavy speaker, *frigida et plumbea oratio.*

‡ See Kant on the Power of Resolution over Disease. Code of Health,

6. Asclepiades, who rendered himself the delight of his age, by his exquisite inventions, in improving and assisting the art of physic, among other measures for that purpose, recommended, as has been already observed, the plan of *pensile, or suspended beds*, by which the patient was rocked asleep *.

The celebrated canal engineer, Brindley, often saw the experiment tried, of a man extending himself across the large stone of a corn-mill, and gradually falling asleep by the stone whirling round, even before it had gained its full velocity. It would not be difficult to contrive circular beds or couches, which might be kept in motion for some time, on a similar principle. It is to be observed however, that many physicians of experience doubt the safety and propriety of rocking a child to sleep in the cradle; and some even believe, that the worst description of head affections result from this custom.

7. Dr Adair recommends, as an effectual means of procuring sleep, to bathe the feet, in a narrow tub, so deep as to reach the knees, gradually increasing the heat, by adding boiling water, till a gentle sweat breaks out; the legs must be wiped quite dry, and a pair of worsted stockings put on. He suggests this as the best means of restoring natural rest, and as particularly beneficial to studious men, and to those who are subject to frequent attacks of nervous headachs, colics, and rheumatic or gouty pains †. This practice might also be of use to old people in cold weather.

8. The application of cold is sometimes as necessary as that of heat. Going to bed cool is in general to be recommended, more especially to persons in perfect health. The celebrated Dr Franklin had a custom of standing for a few minutes after he was undressed before he went into bed, and he believed that he thereby procured more refreshing sleep. At other times, if he found himself restless, from feverish heat, or a parched state of the body, he was accustomed to shake the bed-clothes repeatedly, raising them to some height above the body, and even to get out of bed, and to take some turns about the room, till he became sufficiently cool. If the room be cold, stockings and a dressing-gown should be put on, and on returning to bed, a new part of it should be occupied. This

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vol. iii. p. 254.—Hufeland, vol. ii. p. 199, also observes, that the cares and burdens of the day, ought to be laid aside with one's clothes; and that in this respect we may, by perseverance and firmness of mind, obtain a great power over the thoughts.

* Beds similar to the pensile cradle might be contrived, so as to rest on a frame, when rocking is not necessary, and to be raised up by ropes when it is.

† Adair's Essay on Diet and Regimen, p. 74.

however is not a recent practice; for Fuller, in his Medicina Gymnastica, (the 5th edition of which was published *anno* 1718), mentions, that some hysteric people, who have lain half a night restless and disturbed, and without the least inclination to sleep, upon getting out of their beds, and walking a turn or two about the room, found themselves able, when they returned to bed, to sleep well *. It is a very good practice, on being thus forced to leave the bed from sleeplessness, to use the flesh-brush over the whole body before lying down again; and when restlessness is accompanied by feverish heat, and a dry skin, washing the face and hands, and even the arms, with cold water, proves most refreshing and quieting †.

9. Electricity is said to promote sleep; but it is only the gentler kind that tranquillizes the system. Many persons have slept much better at night after they have used an electric bath in the day-time; and those who complain of the want of sleep, should apply that bath, for a quarter of an hour, or longer, some time before they go to bed, until they recover a habit of sleeping.

10. It is a great point, to get into regular habits with regard to sleeping. Those who accustom themselves to sleep, and to get up at fixed hours, will generally be visited by sleep about the usual period. This habit also tends to render sleep much sounder ‡.

11. In regard to miscellaneous particulars, the exclusion of light, the absence of noise, and attention to the best posture for sleeping, are principally to be recommended.

By an observance of such of these rules, as the circumstances of the case may render necessary, sleep will be properly enjoyed, the strength of the body renewed, and the faculties of both mind and body rendered active, on the morning of each day §.

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* Fuller's Medicina Gymnastica, p. 44.

† See Appendix. *Means of curing slight feverish complaints.*

‡ Darwin's Zoonomia, vol. i. p. 455.

§ Turnbull's Medical Cautions, p. 131. Dr Buchan of Percy-street, London, has furnished me with the following additional hints regarding the means of inducing sleep. "Among the natives of India, I have been informed, it is customary to employ a servant, gently to tickle the soles of the feet, till sleep takes place. A particular description of this practice will be found in the Tooti Nameh. I have often in this country, advised the experiment to be tried, and with advantage, in cases of nervous irritability." Lord Bacon, in his Natural History, says, "It is received and confirmed by daily experience, that the soles of the feet have great affinity with the head: applications of hot powders to the feet, attenuate first, and after dry the rheum. Likewise pigeons bleeding, applied to the soles of the feet, ease the head; and soporiferous medicines applied unto them provoke sleep." No person can sleep with cold feet.

These hints may contain several particulars, seemingly of little importance; but although they should appear insignificant, yet as they may contribute to the preservation of health, they are well worthy of attention.

Sect. IX.—*Of Sleeping in the Day-time, and more especially after Dinner.*

In many southern climates, it is a common practice to indulge in a short repose, sometimes before, but generally immediately after dinner. Homer mentions, as a sign of his great age, that Nestor always slept a little after his meals. Galen allows it to old people *. The Salernian school however, strongly object to this custom; and think, that if at all indulged in, the sleep should be short †.

Those who approve of sleeping after dinner, tell us, that the wholesomeness of that practice is dictated by nature, since all animals appear sleepy after meals ‡. It has been also urged, that numbers of persons, who have enjoyed good health, have always been in the habit of sleeping an hour or two in the afternoon. Most of the religious orders in Spain follow this practice, and yet have not worse health than laymen §.

Both Sanctorius and Lister recommend an hour's sleep after dinner, to those having weak digestion; and an instance is mentioned, by an intelligent physician, of a near relation of his own, who slept after dinner for the last fifty years of his life, and died at the age of eighty-two ‖.

The question of sleeping after dinner is extremely important with a view to health, particularly among those who are

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This may be obviated, by applying bottles filled with hot water to the feet. I knew a gentleman, upwards of eighty years of age, who, having frequently found his sleep prevented by coldness of his feet, procured a large and hard brush, on which he stood, and rubbed his feet for some minutes previous to going to bed; and this he found a much more effectual means of preventing the sense of coldness, and of conciliating sleep, than the application of any thing actually hot.

* Valangin on Diet, p. 280.

† Sit brevis, aut nullus, tibi somnus meridianus.

‡ Valangin on Diet, p. 282. Platerus, a famous physician, who lived upwards of seventy years free from disease, was accustomed to take a nap after dinner, and recommended it to his patients.

§ Father Feyjoo's Rules for preserving Health, p. 89.

‖ See Adair's Medical Cautions, p. 417. But the Doctor recommends it as a most salutary expedient, never to take so much food as to create a propensity to sleep, at that time of the day.

engaged in occupations which give much intellectual exertion, and who are consequently apt to have their night's repose curtailed by the activity of their mind. The aged and weakly also generally find great advantage in giving way to the instinctive desire for sleep, after the principal meal of the day. When the siesta becomes regular and necessary, it is the best plan to set about it systematically. A part of the clothes, as the coat, waistcoat and neckcloth, should be taken off, and a dressing-gown substituted, and all tight pieces of dress loosened. A comfortable sofa with a sloping head should be used; and as it is not advisable to sleep too near the fire, a quilted silk coverlet should be thrown over the feet, from which the boots and shoes should be removed. This cover can be drawn over the body if necessary. The siesta ought to be carefully regulated as to time: it ought to commence within the first hour after dinner, and should never exceed an hour: half an hour is with most people sufficient. The mouth, face and hands should be washed before resuming the usual dress; after which a cup of tea will render most individuals fit for many hours' work.

SECT. X.—*General Rules regarding Sleep.*

1. *Infancy and Youth.*—The celebrated Locke has explained, at some length, his sentiments as to sleep, more especially the rules that should be observed regarding the sleep of children. He justly recommends their being permitted to sleep to their full satisfaction, as nothing contributes more to their health and growth *.

Children should, for some time, sleep on their backs; but as soon as they get teeth, and begin to live on more substantial diet, their bones and ligaments become stronger, and they should be laid to sleep, sometimes on the one side, and sometimes on the other, that both sides may grow equally.

Weakly children ought to be habituated to a hard bed, and slight covering, by which the body will be invigorated. It is particularly to be observed, that feather-beds are more injurious to the health of children, than even of adults †.

Sleep is so great a refreshment to children, that new-born infants, when they are well, are almost always asleep; and if their sleep be frequently interrupted, they soon become lean and emaciated.

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* Locke's Treatise on Education, sect. 21.

† Faust's Catechism of Health, p. 81.

2. *Manhood.*—The observations in the former part of this chapter, are principally calculated for manhood; it is therefore unnecessary to recapitulate any of them in this place.

3. *Invalids*, whether from weakness or fatigue, often express an inclination to sleep for an hour during the day; and this indulgence may be granted them, if it be found that their sleep, during the night, is not thereby interrupted.

Many real or imaginary invalids lie long in bed in the morning, to make up for deficiency of sleep in the night-time; but this ought not to be permitted, for the body must necessarily be enervated by long continuance in a hot and foul air. A little resolution will enable invalids to surmount this destructive habit. By rising early, and going to bed in due time, their sleep will become sound and refreshing, which otherwise they cannot expect.

Want of sleep is a distressing, weakening, and dangerous symptom, in a multiplicity of diseases. The sources of morbid irritation, which produce and support this dreadful evil, are many and complicated; and it is of the utmost consequence, that the true cause should be ascertained. In no instance do ignorant practitioners err so much, or so frequently, as in cases of this kind *.

4. *Old Age.*—Sleep is necessary to all persons, *but is most essentially so to the aged*, because they can least bear any waste or exhaustion; and persons advanced in years, may indulge more in it than the young or middle aged. Instead of eight hours therefore, nine, and even ten may be allowed them, provided they are not corpulent.

If, owing to any agitation of mind, an aged person finds himself unable to sleep as well as usual, he ought, notwithstanding, to rise at his accustomed hour; and next evening let him take the warm bath, and a little hot negus, and he will probably enjoy refreshing sleep. This is a much better plan than lying in bed in the morning, to make up for the night's want of sleep, which may lead to a pernicious habit, very difficult to conquer.

By getting into a regular habit, in regard to hours, (which old people generally have no excuse for breaking through), life may be as much enjoyed in old age, as in youth, and perhaps even more so; *but then it is necessary to attend to a num-*

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* Adair's Natural History of the Human Body and Mind, p. 53.

ber of minute circumstances, which may be overlooked in the heyday of youth, but cannot be neglected in old age with impunity.

5. *Miscellaneous Rules.*—A Chinese philosopher, who had paid particular attention to the art of preserving health and long life, has drawn up a regular system for that purpose. The following are among the rules which he lays down: Not to sleep till two hours after any meal: To walk a little after meals, which will, he says, facilitate digestion: To avoid sleeping in the open air, when the ground is moistened by dew; or upon cold stones; or in a damp place; or upon beds or chairs that are varnished; or on chairs or stones heated by the sun; as such indiscretions occasion colds, palsies, and other disorders *.

In regard to sleeping in the open air, many of the common people, particularly in the country, do so in the day-time, without any inconvenience. But those who are not accustomed to that practice are liable to catch cold, if they happen to fall asleep even on a garden bench; for the pores of the skin, as we have often mentioned, are open during sleep, and a current of cold air passing over the body, may produce dangerous colds and rheumatisms.

But it is still more unwholesome to sleep in the open air during the night, and few can do so without injury to their health. In this climate the night is, in general, too cold; and in hot countries, as on the coast of Guinea, the dews are so extremely noxious, that it is accounted certain death to sleep all night in the open air.

Sleeping in a carriage is not to be recommended; many have suffered severely, from sleeping with the glasses down.

The following miscellaneous rules may, in various circumstances, merit attention: 1. It ought to be a rule with fat people, as the only chance they have of keeping their bulk within due bounds, to avoid soft beds, to sleep little, and rise early. 2. It is advisable to endeavour to escape being roused suddenly, or unnecessarily disturbed during sleep; the servants therefore, should be instructed on this head; and before going to bed, the room should be examined carefully, so that no cat, dog, or other animal, may interrupt sleep. 3. If a person have not slept well, it is best to endeavour to remove the unrefreshed and weary feelings by exercise; for the restlessness has probably been occasioned by indigestion, which, by exercise, may be overcome. 4. Many people suffer from colds if they sleep in a less warm head-dress, or thinner night-cap, than they have been accustomed to. 5. Such persons as are subject to cold feet, ought to have their feet and legs better covered than the body, when in bed. 6. As the spirits are excited by light, darkness is desirable for repose; and fires in the room, by which the air is vitiated, or lamps, or candles, or the admission of the morning light, ought to be avoided. 7. We should never suffer ourselves to dose, or fall asleep, before we go to bed, as it greatly diminishes the chance of getting repose on first lying down. 8. There is not a more pernicious custom, than that of reading in bed; even in the day-time such a practice strains the eyes; but by candle-light it is still more injurious; to which is to be added, the danger of having the bed set on fire, and the risk not only of suffering a cruel death one's self, but of being the source of infinite mischief. 9. At public schools, where great numbers of children sleep in one room, the utmost attention ought to be paid to the nature of the beds, the bedding, the airiness of the apartments, and every thing that can prevent the bad effects of crowding many persons together, and exposing them to breathe a confined and vitiated atmosphere. 10. Those whose sleep is apt to be interrupted by slight causes, should nevertheless keep themselves quiet, and warm in bed, with their eyes shut, and without tossing or tumbling, and this will, in some degree, answer the purposes of more sound repose *.

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* See the Art of Medicine among the Chinese. Code of Longevity, 2d edit. vol. iii. p. 236.

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* Mackenzie's History of Health, p. 384.

CHAP. VII.

ON THE GOVERNMENT OF THE PASSIONS, AS CONNECTED WITH HEALTH.

Among the various systems which have had their day in physic, and which farther investigation, and more accurate inquiries, have overturned, there are two so immediately connected with the subject of this chapter, that it is necessary to advert to them; the one was formed by Stahl, and the other by Hoffman, both able men, and the founders of two celebrated schools in medicine.

According to the doctrines of Stahl, the disorders in the human body *proceed principally from the mind*, which, as variously affected, produces, he thinks, different diseases. Thus, when the mind, which animates the most robust and best organized body, is violently agitated by fright, terror, rage, corroding grief, envy, vehement desire, or any other passion, whether sudden, or attended by long and painful sensations, the body suffers *, and apoplexy, palsy, madness, fever, hysterics, or some such disease, may be the result.

Hoffman, and his disciples, on the other hand, maintain, that the primary cause of all disorders lies *in the structure of the body*, and the mechanism of its organs. Hence, that when a noble and essential part of the body is destroyed, or even greatly injured, death ensues; and that any disorder, in any of the more important members, causes not only a disease of the body, but frequently of the mind also, in proportion as the part affected is more or less intimately connected with the faculty of thinking. These writers assert, that intense cold, as well as a sudden and violent fright, for instance, may occasion a fever; and that a stroke with a mallet, upon the head, is sufficient to disorder the most rational, acute, and vigorous mind. Hence, it is evident, they affirm, that the diseases both of the body and of the mind, are occasioned by the disorders of the body [*].

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* "Of the power of mind over body, (says an intelligent correspondent), I have seen some striking instances, and can safely affirm, that mental agitation is a strong predisposing cause of disease. I lost two friends some years ago in fevers, the origin and progress of whose complaints I knew, and carefully watched. One was a physician, of a very strong and robust habit of body, but whose mind having been dreadfully agitated by a particular vexation, he caught a low typhus fever in visiting a poor patient, and sunk under it. The other was a gentleman of great delicacy of sentiment, and who was cruelly harassed, by the brutal behaviour of a partner in business. He took a typhus, though no cause of infection could be traced, and fell a victim to it. I am satisfied that the actual cause of the death of both was mental agitation."

Whoever considers this subject dispassionately, will probably be of opinion, that, to a certain extent, both these systems are right; and that the only error is, in restricting the sources of human maladies, either to the mind, or to the body, when either may occasion various disorders; and sometimes both are so evidently acting and re-acting on each other, that it is impossible to say, which is the actual cause of the disease.

As it will hardly be disputed, that the mind causes many of those disorders with which the body is afflicted, it is proper to consider, what circumstances, whether connected with the powers or faculties of the mind, or with the motives or passions by which it is influenced, are calculated for the preservation of health, or the production of disease.

1. *Of the Mind in general, as connected with Health.*

The body of man, it is well known, requires constant reparation; and his strength is exhausted, not only by corporeal, but by mental exertions. In proof of this position, let any person try the effect of intense thinking for twelve hours, and he will find how much his body is thereby fatigued, though he may not have stirred from his seat during the whole time. It is necessary therefore, with a view to the preservation of health, to be as careful and moderate in employing the mind as in exercising the body; for, as the Poet of Health has well remarked,

> " 'Tis the great art of life, to manage well,
> The restless mind."

It may also be proper to observe, that the gradual improvement of the mind, is as essential for health, as the gradual growth of the person; a premature or precocious developement of the mental or intellectual powers, is, indeed, proverbially indicative of short life [†].

Nor do those who possess the highest powers of the mind, in their utmost perfection, generally attain great age. In the long published list of persons, who have lived above a century, there is but one individual—Fontenelle, who reached within a few days of 100 years—at all distinguished for his intellectual powers; whilst there are above 1700 others, remarkable for little else than the number of their years *.

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[*] See Bielfield's Elements of Universal Erudition, vol. i. p. 123. Also Philosophy of Medicine, vol. i. p. 48.

[†] " So wise so young, they say, do ne'er live long."—*Richard III.*

The talents naturally calculated for very long life, are, indeed, more of a solid than of a brilliant cast. Those who possess the latter, may live to reach above 100 years of age, if they have, what men of genius seldom possess, *equanimity*. The experience of any individual may satisfy him, how much the mind may be affected by too intense application, during the short space of a single day, and, consequently, how much more it must feel from a continual repetition of the same effort, for any considerable length of time. Where therefore, the mind is naturally inclined to moderation in its exertions, the body is most likely to be preserved in good health. In short, a man possessed of sound sense, who enjoys the *mens sana in corpore sano* †, is the one most likely to attain longevity.

2. *Of the Violent and Distressing Passions of the Mind, and their Effect on Health.*

The instances however, of those who impair their health by overworking their mental powers, are rare compared with those who destroy it by the violence of their passions; which, when uncontrouled, may be justly ranked among the diseases themselves, because they disorder the body in various ways; and,—

> —— the most important health,
> That of the mind, destroy.

A few general remarks on this subject, are all that fall within the limits of a work of this nature.

It is certain, that the passions are given us for wise and useful purposes; but they must be kept under the strictest and most complete subjection. If uncontrouled, they affect us as a tempest does the ocean, without our being able to counteract their pernicious influence. Fortunately, they may be regulated by education, and by unwearied personal attention, the practicability of which has been proved in the instances of Augustus and of Cornaro. As each individual however, has a natural disposition, or turn of mind, born with him, the passions do not act with equal force on all; their effects varying according to the diversity of constitutions, both of mind and of body, differing even in the same individual at different times *. And happy is the man, whose temper is naturally good, or who has been enabled to correct its violence.

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* See Easton on Human Longevity; in which work is contained, the name, age, place of residence, and year of the decease, of 1712 persons in all, who have attained a century and upwards, from the year 66 of the Christian era, to the year 1799. Printed at Salisbury, ann. 1799.

† Juvenal, Satire x. l. 356.

Some men, while in the vigour of life, subdue, or conceal almost from themselves an untoward disposition, finding such restraint necessary for their success and advancement; for enabling them to live comfortably in society; for preventing quarrels, and their consequences; from the strictness of martial discipline, and other causes; and yet, when they attain power and independence, or after they get old, or fall into a sickly state, they lose their good humour, lay aside their assumed calmness of temper, and become fretful and irascible. This should be checked, if possible, at the commencement; for, by the indulgence of unruly passions, the disorders of old age are greatly aggravated; and such persons will find, when too late, that to retain a dominion over the passions is an essential and indispensable requisite to health †.

It has often been remarked, that persons destitute of ambition and avarice, are peculiarly likely to enjoy long life.

> Free from those anxious cares, which oft perplex
> The wily statesman, or the miser vex,

they feel no regret for the past, nor anxiety about the future. Enjoying that tranquillity of soul, on which the happiness of our early years so much depends, they are strangers to those torments of the mind, which usually accompany more advanced years, and by which the body is wasted and consumed ‡. Hence a calm, contented, and cheerful disposition, may be justly considered as the great source of bodily as well as of

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* Mead's Works, p. 426.

† Willich's Lectures, p. 579.

‡ A friend with whom I have corresponded on the subject of longevity, expresses his firm belief, that an anxious state of mind brings many to their end, long before their natural term, or what might be expected from the original structure of their bodily frame. Whether their anxiety arises from alarms regarding the state of public affairs, or from distress connected with their family circle, or in consequence of the pressure of domestic expenditure, their nerves become relaxed and unstrung, and the due circulation of the sources of life are deranged. Hence arise distraction of the senses, and ultimately the destruction of the body, by palsy, dropsy in the chest, bilious redundance, and various other ways. If these doctrines are well founded, the assistance of the divine or of the philosopher might avail, in many cases, in which it is vain to have recourse to the physician. One of the best means to preserve health, is to prevent the maladies of the mind; and the best receipt for that purpose is, to settle a regular, and, if possible, a daily account with God and man.

mental health, and ought to be accounted the most important of all our possessions.

It may be observed however, that in several instances, a certain activity of mind has accompanied longevity. Lord Bacon remarks, that the milder sort of creatures, as the sheep and the dove, are not long-lived; and that choler is the whetstone and spur to many functions in the body. He admits, that, to be lean, with a settled temper, denotes long life; but then he contends, (as has been already remarked), that persons who are inclined to corpulency, cannot expect long life, unless it is joined with choler, and a stirring and peremptory disposition.

Some medical authors have inculcated, and certainly with reason, that many fatal disorders might be prevented, by the due regulation of the passions, and that a large proportion of the diseases to which we are prone, originate from their influence on the system *.

Every day's experience points out, that giving way to passion may give rise to the most dreadful disorders. Numerous instances occur, in which anger, carried to an extreme, terminates in apoplexy; sudden and extravagant joy occasions madness; and grief, anxiety, and despair, lead to settled melancholy, with all its baneful consequences. To give way to passion therefore, is *to strike our colours* to disease, and to surrender to an implacable enemy, who might have been subdued by a manly resistance.

There is no emotion of the mind which, as regards health, it is so necessary to subdue, as that of *fear*. It has been justly called a base passion, *and beneath the dignity of man*. It robs him of power, reflexion, resolution, judgment, and, in short, of all that pre-eminence which belongs to the human mind. To be terrified for the effects of thunder, or to live in apprehension of ghosts, or similar chimeras, cannot be too strongly reprobated. Hence those who have the care of children, ought to be rigidly prohibited from infusing into their minds the dread of ghosts, witches, or of any of the supernatural machinery of vulgar superstition.

Fear has not only great influence in occasioning and in aggravating diseases, but in preventing their cure. Experienced surgeons endeavour therefore, to raise hopes of their patients before operations. Fear, by depressing the spirits, not only predisposes to disease, but often renders those diseases fatal, which an undaunted mind would overcome. Indeed, the constant dread of some future evil, by dwelling upon the mind, may occasion the very mischief which is apprehended. Timorous persons are more readily infected by epidemical disorders than those who are fearless; because fear not only weakens the moral energy, but, at the same time, increases the susceptibility of contagion. It adds to the malignity of diseases, changes their natural course, and aggravates them by many incidental circumstances: the efforts of nature being thus counteracted, the danger of a fatal termination is very much increased. This is a point which cannot be too much inculcated; for experience sufficiently demonstrates, that many perish from despondency, who, if they had preserved their spirits, might have survived many years.

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* See Dr Lettsom's Address, in the Introduction to Dr Falconer's Dissertation on the Influence of the Passions on the Disorders of the Body, 3d edit. Introduction, p. 17.

Among the various disorders which originate in the influence of the mind, that which is denominated *the Swiss malady* is the most remarkable. It is occasioned by that desire of witnessing again the scenes of their youth, which seems peculiarly to affect the natives of all mountainous countries *, but especially those of Switzerland. This disorder is said to begin with melancholy, sadness, love of solitude, silence, loss of appetite, bodily weakness, and fever in the evening, which is frequently accompanied with livid or purple spots upon the body. When the disorder is violent, nothing avails but returning to their own country, the very preparations for which are attended with immediate relief.

It is the more necessary to attend to the effects of the passions upon health, as there is reason to believe, that disorders arising from vehement agitation of the mind, are more stubborn than those occasioned by violent corporeal exertions; because the latter are cured by rest and sleep, which are not to be procured under the influence of the former †.

Nor ought Bacon's remark to be forgotten, that agitation of mind prevents the benefits which we ought naturally to derive both from food and rest. He therefore very properly recommends, that if violent passion should chance to surprise any one, either when sitting down to a meal, or when composing himself to sleep, he should defer eating, or going to bed, until the mind recovers its former tranquillity.

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* Many instances of it occur in the natives of the Highlands of Scotland, when absent from their country. So powerful is this malady in the Swiss, that under the old government of France, it was forbidden to play the tune called Ranz de Vaches, a favourite national air, in the hearing of the Swiss regiments.

† M'Kenzie on Health, p. 309. It is remarked also by M'Kenzie in the same place, that the perspiration is larger from any vehement passion of the mind, when the body is quiet, than from the strongest bodily exercise, when the mind is composed. Those therefore, who are prone to anger, unnecessarily exhaust the powers of the system.

The passions, as Hufeland justly observes, if yielded to, have a tendency to exhaust the finest of the vital powers; to destroy, in particular, digestion and assimilation; to weaken the vigour of the heart; and, by these means, to impede the important business of restoration.

If such be the effects of yielding to the impulses of our more violent passions, what can be more desirable, for the health and happiness of man, than to keep those sources of disease and misery under due subjection? Not indeed by stoical indifference, which would deprive us of many of the pleasures of life, but by such a due regulation of our emotions and affections as may enable us to enjoy all their advantages, without being the slaves of anger, of unmanly fear, of animal appetite, or of any inferior passion. A mind possessed of spirit and fortitude, will not sink under those disappointments to which all, but particularly the aged, are necessarily subjected; whereas, the unfortunate individual, who is subdued by fear, rage, despair, or any other violent passion, can neither enjoy health, nor feel any pleasure in his existence.

3. *Of the pleasing Emotions of the Mind, as connected with Health.*

The emotions are fortunately not always violent or distressing; and we shall now proceed to discuss those of a more pleasing description, namely, hope and joy.

1. *Hope* seems to be designed for the support of man, under the gloomy vicissitudes of human destiny; and we bear with more ease the calamities of life, when we can represent to our imagination, the animating prospect of better days.

> Hope prolongs our happier hour,
> Or deepest shades, that dimly lower
> And blacken round our weary way,
> Gilds with a gleam of distant day *.

"The pleasures of hope," indeed, have long been considered as one of the greatest sources of human happiness. If *fear*, as has been already observed, be attended with such baneful consequences to the animal economy, what advantages may not be derived from the opposite emotion of *hope?* It has accordingly been remarked, that when the minds of persons have been fortified by hope, they either escape the contagion of any prevailing epidemic, or are affected by it in a milder manner than those are who give way to apprehension.

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* See Gray's Ode on the Pleasure arising from Vicissitudes, 4th edit. of his Works, vol. v. p. 58.

Hope is not only a means of preventing contagion, but also greatly contributes to the cure of disease [*]. Hence the effects of amulets, incantations, and charms; which can have no efficacy, except by working on the imagination, and thus inspiring hope or confidence. It is particularly necessary to excite hope in those who labour under chronic diseases, as it will induce them strenuously to pursue the necessary means of cure, which, to be effectual, require to be long continued.

It is an exceedingly interesting question in the treatment of disease, whether a physician ought to encourage hope in his patient *to the last?* Such conduct has, by some, been deemed improper, in a religious point of view. Unless however, it is strongly insisted upon by the patient, or his near relations, any intimation of great danger had better be avoided; for it sometimes happens, that the most experienced and sagacious physician is mistaken in his prognostic; and persons recover from the brink of the grave, who probably would not have escaped, had they been informed that there was but little or no prospect of recovery [†].

2. *Joy.*—This is certainly one of the most salutary of the emotions, and we should never neglect to seek and to employ every occasion of indulging it within proper bounds; for a joyous state of mind supports the general vigour of the body, and has not only a tendency to preserve it from the attacks of particular diseases, but also to prolong life. Laughter also, the external expression of joy, is perhaps the most salutary of all the bodily movements; it promotes digestion, circulation and perspiration, and enlivens the whole frame.

As excessive or sudden joy is sometimes injurious even to those who are in health, great circumspection should be observed in communicating *to the sick* any intelligence which may excite that emotion too violently. With this caution, joy may be of no inconsiderable use in the cure of disease, more especially in chronic cases.

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[*] This is the doctrine of Boerhaave and of Sanctorius.

[†] See an interesting Essay on the Changes produced on the Body, by the operations of the Mind; written by the late Dr Corp, M. D. Bath. On this subject, a respectable physician lays down the following rules: In all cases where the fears of the patient would produce immediate danger, silence is the physician's duty. In those where the life of the patient, by obstinacy, is risked, he must be told of his danger. Where the interests of a family may render such an intimation necessary, the physician may, of course, if he judge it safe, intimate to the patient that his case is critical.

On the whole, those who pass cheerfully through life, have in general the most healthy appearance, and every characteristic of long life; and it has been well observed, that those of the higher ranks in France, who, instead of associating gloomily together, for the purposes of inebriety or gambling, usually spend all the hours they can spare from business or study, with the young, the gay, and the happy, live longer, and, what is of much greater consequence, live more happily, and enjoy their faculties of body and mind more entire in old age, than any of the same rank in Europe.

CONCLUSION OF PART I.

The following summary of the preceding chapters, may prove practically useful.

Rules for the Preservation of Life.

1. Breathe pure air; 2. Use a moderate proportion of liquid food; 3. Consume no more solid food than the stomach can easily subdue; 4. Preserve the organs of digestion in good order; 5. Take regular exercise without over-fatigue; 6. Sleep as many hours only as may be necessary to restore the strength of the body and mind; 7. Controul the passions, and bear with fortitude the disappointments of life:—These are the most effectual means of preserving health, of enjoying life, and of attaining longevity.

PART II.

CHAPTER I.

OF CLOTHING.

In hot climates there are various tribes and nations by whom scarcely any clothing is worn *. Even in the higher latitudes, savage tribes have been found, who were but little accustomed to any species of dress †. But though clothing is not so essential as air, food, digestion, exercise, or sleep, there are but few countries where man can exist in comfort without it. Even by the most savage tribes some species of clothing has been sooner or later adopted; and, among civilized nations, comfort, taste, and happiness, as well as health and longevity, have been essentially promoted by it.

In treating of this subject, we shall consider,—

I. The advantages of clothing, and the circumstances which led to its use. II. Its disadvantages. III. The materials of which it may be composed. IV. The wholesomeness of the principal substances made use of. V. The form of the various articles of dress, as connected with health: And, VI. The

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* Edwards, in his History of the West Indies, (vol. i. p. 53 and 75, 8vo edit.) informs us, that the ancient Caribs went naked. Buffon, in his observations on the varieties of the human species, has also stated many facts to prove, that in several warm climates, men have been accustomed to go entirely naked.

† Dr Henry, (Hist. of Great Britain, 4to edit. vol. i. p. 469), mentions, that there is hardly any one fact in ancient history better attested, than that the first inhabitants of every country in Europe, and particularly of this island, were either naked, or almost naked, unless the custom they had, of painting their bodies, can be considered as clothing. Herodian, lib. iii. c. 47, to account for this fact, says, " The Britons drew upon their naked bodies the figures of animals of all kinds, which they esteem so great an ornament, that they wear no clothes, in order that these ornaments may be exposed to view." —Perhaps the fondness which the Celtic tribes entertained for painting their bodies, rendered them partial afterwards to party-coloured garments, and introduced that chequered garb which is still the favourite dress of the Scotch Highlanders.

rules to be observed regarding clothing, according to the climate and seasons, the age, the sex, and situation or circumstances of each individual.

SECT. I.—*Advantages of Clothing.*

IT does not come within the limits of this work, to consider the public and political advantages of clothing. We may observe however, that its manufacture tends to excite industry;—to furnish employment to a great proportion of the population;—to increase and facilitate trade;—to aid the civil government, it being both a source of wealth, and a subject of taxation;—while by promoting decency, it tends to advance the interests both of religion and morality. Considered as connected with health and longevity, it is useful in *protecting the body* from injury, and in *preserving health.*

Protection.—A savage, with the toughest possible skin, can neither run over stony ground, nor force his way through a thicket, with as much facility and safety as a person prepared by clothing for such feats. Indeed, nothing can be more helpless than a naked savage, whom every thorn can molest: who is equally annoyed by the heat of the sun by day, and by the inclemency of the weather by night; and who is obliged to cover his body with unctuous matter, or to shelter himself in smoke, in order to escape the stings of innumerable insects, with which the atmosphere, in the hot seasons of the year, so much abounds *.

Health.—In no respect is clothing of more importance than with a view to health †. It is essential that the body should be kept as nearly as possible in the same temperature. This can only be effected by means of clothing, which may be rendered warmer or cooler, as circumstances require. It is by clothing, that in cold countries a due proportion of perspiration, so essential to health, can be preserved; and it is by it that in hot countries, the head is guarded from the violence of the sun, and the skin from the injurious effects of a burning atmosphere; while cleanliness, so essential to health, may be most effectually promoted by the proper management of dress *.

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* The people of Greenland and of Lapland are obliged, even in summer, to live perpetually in a thick smoke, to guard themselves against the bite of gnats, during the warm season of the year.—*Buffon's Nat. Hist.* vol. ix. p. 63.

† The particular advantages of clothing, *as connected with health,* will be discussed in Sect. 4.

SECT. II.—*Disadvantages of Clothing.*

IT must not be imagined that clothing has not also its disadvantages. Among these are to be included, 1. The expense; 2. The prejudicial effects to health of wet or damp clothes; 3. The mischiefs resulting from the wearing of garments improperly made; 4. The disadvantages arising from the use of too great a quantity; 5. The time wasted at the toilet, which often interferes with the attention due to exercise; and, 6. The restraint to which a person is often subjected, when dressed.

1. *Expense.*—When clothing requires a greater expense than the individual can afford, or when he indulges to extravagance in dress, so that he himself or his family are deprived of nourishing food, in order to make a gay and showy appearance, no circumstance can be more productive of mischief, or is more frequently the source of misery, and even of crime.

The extravagance of the rich in regard to dress, is frequently attended with injurious consequences to their health, as well as to their circumstances †. How many have had their fortunes impaired, their constitutions injured, and their virtue endangered, by excessive attachment to fashionable dress! A taste for finery once acquired, can hardly be eradicated from the minds of those who, incapable of directing their attention to great objects, occupy their time with frivolous pursuits.

2. *Liability to get wet.*—In almost every quarter of the globe, there are rainy seasons, when it is hardly possible to be much out of doors without getting the clothes wet. This is a great disadvantage in regard to clothing, wet garments being the source

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* To prevent the risk of being *sun-struck*, it is advisable, in hot climates, to wear white hats, or some folds of clean white paper under a black one.—*Tissot's Advice to People in general*, p. 167.

† Taylor, the water poet, in contrasting the simplicity of the aged Parr's manner of living, with the splendour and luxury of the opulent, thus reprobates their profusion:

To wear a farm, in shoe-strings edg'd with gold,
And spangled garters, worth a copyhold;
A hose and doublet, which a lordship cost;
A gaudy cloak, three mansions' price almost;
A beaver, band, and feather for the head,
Prized at the church's tithe, the poor man's bread.

of various disorders. Many inventions have been thought of to remedy this inconvenience; as, coverings of oil-skin for hats, great coats of the same material, &c. Against any danger from this cause, clothes of a strong texture, which water cannot easily penetrate, will, in general, be found the best defence. Perhaps the most perfectly water-proof fabric that has as yet been invented, is the cloth prepared with Indian rubber or caoutchouc. The means of rendering this substance capable of being spread out, so as to be useful for covering cloth and other purposes, was discovered by Mr James Syme, surgeon in Edinburgh; he having ascertained that caoutchouc is soluble in naphtha or purified coal tar *. Mr Mackintosh of Glasgow has been very successful in preparing a water-proof cloth from this substance. As wet clothes however, cannot always be avoided, great care must be taken to continue in motion until they can be changed; sitting in wet clothes being apt suddenly to suppress perspiration, and thence to place the system in a state of great danger. As soon as the wet clothes are taken off, the skin should be rubbed with a flesh-brush, or a coarse woollen cloth, to restore the natural warmth of the body, and the circulation of the skin.

3. *Often improperly made.*—From the folly of fashion, or the unskilfulness of tradespeople, many have suffered from the tightness of articles of dress †. Females are thus doomed to misery, by the barbarous custom of wearing tight stays. Tight bracelets, narrow sleeves, tying the sleeves close to the elbow, (which was formerly the fashion with ladies' gowns, but is now happily exploded), are all improper practices. The tight stocks worn by the men are highly injurious to health, obstructing the blood in its course from the brain, and occasioning headachs, apoplexies, and other fatal diseases. It is particularly unfortunate, that they should still be retained in the dress of the soldier ‡. It may be proper to add, that however injurious it is for grown people to wear tight or narrow clothes, it is still more mischievous during the period of growth. This is a point to which parents are seldom sufficiently attentive, however imperatively called upon to be so for the health and comfort of their children.

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* Annals of Philosophy, vol. xii.

† The close pressure of any particular article of dress is highly reprehensible. Thus narrow sleeves and pantaloons are a very great check on the muscular exercise of the arms and legs.

‡ The soldiers in Russia were at one time obliged (by order!) to wear their stocks so tight as to flush the face, in order to give a *martial* appearance.

4. *Apt to be used in improper Quantities.*—In civilized societies, the improvement of arts, the facility with which the conveniences and luxuries of life are acquired, and the gratifications which these afford, have disposed mankind to be perhaps too solicitous to guard against the inclemency of the seasons, and to use too great a quantity of clothes for that purpose. Hence it is, that the inhabitants of the more highly civilized countries, are rendered delicate and sensitive; so that, in proportion to the increase of luxury, the people become less hardy, and more obnoxious to various sources of disease *.

It was observed by Lord Bacon, that a great store of clothes, either upon the bed or the back, relaxes the body †. And Dr Beddoes, with his usual ingenuity, has described the mischievous effects of over-clothing, which, by drawing out, upon every exertion, too much perspiration, greatly weakens the frame, and occasions coldness and numbness in the extremities ‡.

Mere infants, who cannot have much exercise, ought, no doubt, to be warmly clothed in cold weather; but children, when they can run about, ought to be lightly clad. By heavy garments the activity of the body is checked; and when labour or exercise is engaged in, they occasion fatigue and weakening perspiration §. There is another bad effect of overclothing in youth and manhood; those who keep themselves too warm in their younger years, deprive themselves of the advantage to be derived from additional clothing when they become old ‖. When a person is weak, either from sickness or from old age, it is of the utmost consequence to have light and soft garments, which are easily carried, and which furnish warmth, rather from the nature of the material, that from the quantity worn. It is well known how much more warmth is produced by flannel, worsted stockings, &c. made of the Shetland or other soft wools, than articles manufactured from a coarser material.

In regard to quantity, a curious question has arisen, namely, whether the greater quantity of clothes ought to be worn within doors or without ¶. When in the open air, a person is certainly more exposed to the inclemency of the weather, but that disadvantage may be compensated by motion and exercise. Within doors, a person sits more, and consequently is more apt to feel cold, to prevent the effects of which, large fires are the common resource. The Turks, who are not fond of fires, keep themselves comfortable within doors, by using warmer clothing than when they go out; and this plan is no doubt less pernicious, than pots of burning charcoal, which are sometimes resorted to, where regular fires are not called for.

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* Adair's Medical Cautions, 2d edit. p. 308.

† History of Life and Death, Code of Health, vol. iv. p. 190.

‡ Manual of Health, p. 224, 225.

§ Conservateur de la Santé, p. 209.

‖ Hart's Diet of the Diseased, p. 153.

¶ The Chevalier Edelcrantz ingeniously observes, that when the difference of temperature between the external air and that within doors is inconsiderable, it may be useful to put on a great coat on returning home, instead of doing it when

5. *Occasions waste of Time.*—Another disadvantage resulting from clothing, is the time taken up in attention to the toilet, to the neglect of essential duties, and that of exercise in particular. When dress was more attended to than at present, it is incredible how much time was employed in the contemptible occupation of adorning the person. Many dressed three or four times a-day; and the toilet of a fine lady, when preparing for any *gala*, or splendid entertainment, generally lasted four, or even five hours.

6. *Restraint when dressed.*—Nothing is more ridiculous than the restraint which some persons are under when dressed. They become perfect slaves to their fine clothes. There were many, in former times, who would remain fixed as statues, from morning to night, rather than discompose a single hair, or alter the position of a pin *, thus sacrificing their health to dress; and sometimes ladies had their heads dressed the night before a great ball, and slept in a chair, that they might not discompose their hair. Nothing could be more absurd than the stiff manners of former times, owing to these restraints. Active young men were then taught, as the height of elegant behaviour, to stand almost motionless, with one hand in their waistcoat, and the other in the pocket of their breeches, as if ashamed of shewing that any part of their body was calculated for labour. It was the inconveniences attending these restraints, which introduced the English fa-

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going out. The exercise in the open air produces the necessary degree of warmth, which, in the chamber, in a sedentary state, can only be supplied by additional clothing. See Code of Health, vol. ii. App. No. 15. The Chinese of rank, who have no fuel, put on 18 or 20 habits, one over another, which they successively take off, in proportion as the sun ascends to the meridian, and they assume them again as the cold of evening approaches. All such customs are well worthy of consideration, in countries where the houses are ill prepared for shutting out cold winds; or where the management of grates and the want of fuel leave the house nearly as cold as the open air. But to those who, like us, have well-built houses, and a wholesome means of heating them, Chinese and Italian expedients are more matter of curiosity, than practices worthy of imitation.

* Buchan's Domestic Medicine, p. 89.

shions (at least in regard to the male costume) into France, whence our modes of dressing had formerly been imported.

But dress is not only a restraint on the body, but has an important influence on the mind. Thus Horace, with that correct observation of human nature, by which he was so eminently distinguished, quotes an instance of a person, who, when he maliciously intended to injure another, gave him a present of costly clothing. This brought about a total alteration in his hopes and plans, made him indolent, and luxurious, and a spendthrift, so that he was at last reduced to the necessity, of betaking himself to the trade of a gladiator, or becoming the driver of a green-grocer's hack.

Rules for Clothing.—These may be comprehended under the following general heads:

1. Our garments should be made of soft or pliable materials, so as not to obstruct the free and easy motion of the limbs; 2. They should be made of such a shape as to be comfortable from their ease; and health should not be sacrificed, with a view of concealing any supposed defect of the body, or for the purpose of making a more fashionable appearance; 3. Our clothing should not be warmer than is necessary to preserve the body in a proper degree of temperature *; 4. The clothes, more especially those next the skin, should be made of substances easily cleaned; 5. They should not be made of too costly materials, at least not beyond the ability of those by whom they are worn; 6. They should be suited to the constitution and age of each individual. Robust and young persons are better able to endure atmospheric vicissitudes than the delicate or the aged, consequently they may with safety be less warmly clad †; 7. The celebrated John Hunter contended, that a variety in regard to clothing is necessary. Other great authorities however, have asserted, that uniformity in this respect is preferable, *at least in a changeable climate* ‡.

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* See Vaughan on Modern Clothing, p. 81. In this climate, our bodies, in the open air, are always exposed to a temperature which is much inferior to our own; hence the atmosphere is perpetually extracting a portion of the heat generated in our own system. This abstraction of heat we endeavour to limit by the use of clothing, which, by preventing the access of fresh portions of the cooler air, keeps us constantly surrounded with an atmosphere of a temperature nearly equal to that of our bodies. See Buchan's Practical Observations concerning Sea-bathing, p. 4.

† Buchan's Domestic Medicine, p. 87.

‡ Boerhaave was of opinion, that, in the climate of Holland, the winter garments ought not to be put off till the day before midsummer, and that they should be put on again the day after. But John Hunter remarks, in his observations on animals, with respect to the power of producing heat, that a habit of

SECT. III.—*Of the principal Articles used as Clothing, with a view to Health.*

IN a work of this nature, it is not necessary to dwell upon those arts, by means of which, the various materials of dress, are manufactured or prepared for use. But it is proper to discuss the relative advantages, with a view to health, of the four principal sources of human clothing, namely, 1. Linen; 2. Cotton; 3. Silk; and, 4. Wool; and to add some general observations on the use of three other important articles, viz. fur, leather, and oil-skin.

1. *Linen.*—The use of linen cloth, as an inner garment, has been long a source of health and comfort; and its discovery may be regarded as a principal means of mitigating many cutaneous infectious diseases, the offspring of filth, which the cleanliness consequent on the use of linen next the skin, went far to cure *. Linen was much used by the Egyptians; and they took singular care to keep their garments clean, preferring cleanliness to ornament.

In regard to the supposed attraction of this article for moisture, it appears, from the experiments of Count Rumford, that linen does not absorb moisture from the atmosphere with so much avidity as wool, hair, feathers, and other animal substances †. The coldness of linen to the touch, arises from its being a good conductor of heat.

In favour of linen it has been urged, that for healthy children, who run much about, fine linen, next the skin, is a proper covering, on every part of the body except the feet and legs: That while particular infirmities, or a defective perspiration, natural in old age, may render flannel or fleecy hosiery advisable, linen seems suited to early life in this country, and is the more to be recommended, that it requires little trouble to keep it clean ‡.

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uniformity in the application of heat and cold to an animal body, renders it more sensible of the smallest variation in either, while, by the habit of variety, it will become, in a proportionable degree, less susceptible of all such sensations. The conclusion however, is not very evident. If it were necessary for the health of our body, that there should be a uniform standard of animal temperature for all seasons, there can be no reason why man should not endeavour to make the external regulation of his temperature as nearly equable as possible. It is to preserve a uniform temperature from without, as well as within, that animals get their winter coat from Providence.

* See Strutt on the Dress and Habits of the People of England, vol. i. Introd. p. 13. The use of linen was very ancient in Greece. It was imported from Colchis and from Egypt. Do. vol. ii. Introd. p. 120.

† Rumford's Philosophical Papers, edit. 1803, vol. i. p. 267.

‡ Buchan's Advice to Mothers, p. 176.

On the other hand, it is contended, that linen cloth is not favourable to perspiration; that by its compactness, it imbibes too soon the perspirable humours, and that it also gives them off rapidly by evaporation *. Woollen next the skin is by many considered preferable both in summer and winter. In the latter season, for its warmth; in the former, for its lightness, and from its preventing the influence of the air on the body in a state of perspiration; whereas linen, when wet, is cold and dangerous.

2. *Cotton.*—This article stands midway between wool and linen. Like the one, it rather promotes perspiration, whilst, like the other, it imbibes the perspired humours, and admits, although in a minor degree, of evaporation †. Like linen, it can be easily washed and dried.

This cloth affords a species of garment, which is cheap, and well calculated for almost every purpose. It seems to be peculiarly well adapted for the dress of women, or of those who live much within doors, being light and pliable. In hot countries, where perspiration abounds, cotton-cloth, for inner garments, is reckoned more wholesome than linen; of this, perhaps the best proof is, that cotton-cloth is universally worn within the tropics, and that all writers on this subject agree in preferring cotton-cloth to linen ‡.

3. *Silk* is generally thought to be better calculated for an outer, than for an inner garment, and for habits of elegance and of show, than of real utility §. At the same time, some maintain, that silk may be used with much advantage as an inner garment, particularly round the neck and feet, when the circulation, from want of sufficient exercise, is sluggish; as it excites a comfortable warmth, without keeping the skin too moist.

4. *Wool.*—Of all the articles of clothing, there are none that can be so safely recommended for general use as those made from wool, more especially to persons residing in cold or even in temperate climates. It is certain, that a great diversity of sentiment has been entertained, with regard to the propriety of using woollen clothes in all cases; and some go so far as to lay it down as a general rule, that persons of all ages, sexes, and conditions of life, and in all countries, should wear flannel

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* Willich's Lectures, p. 256.

† Ibid. p. 257.

‡ Dr Johnson on Tropical Climates, p. 523.

§ Willich's Lectures, p. 256.

next the skin *. The importance of this article of clothing is so great, that we shall be excused if we treat it rather fully.

Rules regarding the use of Flannel next the Skin.

The effect of different descriptions of clothing on the function of the skin, although often treated of, does not appear to us to have been satisfactorily explained. A linen shirt, for instance, worn next the skin, by a person under exercise in a hot day, soon becomes soaked with perspiration, and feels cold and wet to the skin. It is said to imbibe perspiration too easily, but it is also stated that linen retains fluid. How therefore does it become cold? The natural conclusion surely is, that linen not only absorbs moisture, but also easily parts with it; in short, that it is a good conductor of fluid. Free perspiration again, in a person who wears flannel, is attended with very different consequences. In the first place, unless the flannel be pressed closely to the skin, and the perspiration is very profuse, the flannel does not become wet. Any one who has ever put his hand between the flannel shirt and his skin, will be fully aware of this, for while the skin is cool and moist, the flannel remains comfortably dry. The fact seems to be, that flannel repels fluid, while it gives passage to vapour. It therefore discourages *sweating*, but promotes *insensible perspiration.* Thus linen absorbs fluid, which passes from it rapidly by evaporation, and thence becoming cold, checks perspiration. Flannel repels fluid, but attracts vapour, and thus cools the skin, without however having its own temperature much altered in this process.

This view of the phenomena which attend the use of flannel next the skin, will explain its good effects in climates of the most opposite descriptions. Flannel next the skin is found the coolest dress within the tropics, and the warmest in the frigid zones. The fact of its being a bad conductor of caloric will not account for this; for although from this quality, may result its good effects in extreme cold, yet unless the temperature of the air be above that of the body, flannel will have no use for its non-conducting powers. Let us suppose that a person wearing flannel is exposed to a heat of 90° Fahrenheit, and that his body is in a profuse perspiration. If flannel absorbed the fluid there would be little of a cooling effect produced, for the simple absorption of fluid is not refrigerating. But by inducing the evaporation of the fluid, flannel causes the abstraction of heat from the skin: for it is a well-ascertained fact, that when fluid passes into a state of vapour, it acquires a greater capacity for heat, so that without becoming sensibly hotter, it extracts heat from the surrounding substances, and thence the cooling effects of evaporation. Flannel therefore, is a conductor of vapour, and a repeller, (if we may use the word) of fluid. It is from these qualities, that while it does not get wet itself, it frees the skin of perspiration, and cools it at the same time. In cold climates again, it is, in its being a non-conductor of heat that the comfort of flannel consists.

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* Count Rumford has declared his conviction of the utility of flannel shirts in all seasons. He says, that he has worn them in all climates; in the warmest apartments, and in the most fatiguing exercise, without the least difficulty; that he was relieved, by the use of flannel, from a pain in his breast to which he had been subject; that he never after knew an hour's illness; and that nothing exceeds the agreeable sensation of this dress, when people have been once accustomed to it.

Flannel is well adapted for *infants at the breast*, whose exercise extends no farther than being dandled in their nurses' arms, and indeed for children in general, who should wear it in the cold seasons of the year, or in cold climates *; but to healthy young people, who can go about, and take sufficient exercise, it is not so necessary. In old age it becomes again essential, this period of life being, in regard to clothing, as well as in most other respects, a second childhood. It is dangerous however, too long to postpone the use of flannel; for it is not to cure diseases solely, that warm clothing should be applied, but to prevent them. Often, and to them unexpectedly, men who boast themselves superior to the elements and seasons, are laid prostrate by some disorder, from which the timely use of flannel might have protected them; whilst persons of weak constitutions, being obliged to pay constant attention to self-preservation, protract their lives, and enjoy tolerable health †.

The use of flannel next the skin is perhaps more necessary to men, (who are more exposed to the inclemency of the weather), than to females; at the same time, as the latter have generally a greater delicacy of constitution than the male sex, there is little use in proposing different rules for the two sexes.

The use of flannel next the skin is particularly required by those who are constantly exposed to all kinds of weather, as husbandmen, fishermen, sailors, soldiers, travellers, and work people engaged in out-of-door trades; and it appears from the reports of the clergy who furnished the materials for the

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* The celebrated John Hunter's receipt for rearing healthy children, was, "Plenty of milk, plenty of sleep, *and plenty of flannel.*"

† Letter from the Baron Edelcrantz, Code of Health, Appendix, vol. ii. p. 41.

Statistical Account of Scotland, that abandoning the use of flannel shirts, has been in many cases injurious to the health of the common people in the more northerly parts of the island.

Flannel should be thrown off on going to Bed.—Dr Beddoes has justly observed, that no good reason can be assigned, why any one, who is master of a comfortable bed, should wear flannel next his skin in the night time. There are some however, troubled with chest complaints, to whom a *flannel pectoral* may be of the greatest service night and day, in the winter. There are others who, in the cold seasons of the year, may find it advisable to wear a *stomacher*, as it may be called, or a piece of loose flannel, capable of keeping the stomach and bowels in a warm and comfortable state.

It ought to be a rule with all those who wear flannel, frequently to change it, more especially if worn in the night time as well as by day. The mode of washing woollen clothes is not a matter of indifference. Both flannel and fleecy hosiery should be washed in very hot water, and when wrung, should be well shaken, and hung up to dry in the open air. On no account should it be dried near a fire, as that causes shrinking.

5. *Fur.*—In the colder climates, furs are undoubtedly the most important source of dress for the inhabitants, having all the advantage of many plies of covering, with the lightness of one. The observations we have made on flannel, seem to apply still more strongly to furs. They exclude cold, and probably, in the hot summers of the climates where furclad animals most abound, keep the system cool, by their effect in encouraging insensible perspiration.

In our own climate furs are a most important article of dress during the winter season, and are well worthy of the general use they have of late obtained *; although, no doubt, among the Turks, Poles, and Hungarians, who wear their furs at the expense of cleanliness, this substance may become the source of infectious cutaneous diseases.

Furs were, at one time, more used as ornament than for warmth, more especially the finer sorts, as ermine, &c. †. As far back as the thirteenth century, the robes, the mantles, and other outer garments worn by persons of opulence, were lined or faced with fur. Furs were often worn principally upon the outer parts of the garment, forming an ornamental facing; but gold and silver lace have rendered that fashion less frequent.

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* Many have contended, that during the winter season, we use furs much less in this country than we ought to do, considering how cold and variable our winters are. It is folly to consider the use of fur as a mark of effeminacy, and on that account to suppose, that it is only calculated for delicate women.

† Strutt, vol. i. p. 34.

6. *Leather.*—Tanned leather is a very valuable material for clothing. It is unnecessary to enlarge on its usefulness in the manufacture of boots and shoes, that being sufficiently proved by its almost universal adoption. But we must call attention to an important use of leather, which has grown up of late years, and which appears to be of Spanish origin. There is not a more useful piece of clothing in our variable climate than chamois leather worn next the skin, or what is better, over cotton or flannel. For the rheumatic this is a most valuable article of clothing; and a chamois leather shirt and drawers ought to be resorted to by all persons exposed in the open air, to the twenty-four hours' vicissitudes of our changeable climate.

7. *Oil-skin and Wax-cloth.*—The art of impregnating silk or linen with oil or wax, so as to become impervious to water, has also been rendered subservient to the purposes of clothing. Hats are covered with these substances,—a practice serviceable to those who are much out of doors in the wet seasons of the year. The caoutchouc cloth for cloaks, great coats, &c. is the best water-proof stuff for wearing apparel.

SECT. IV.—*On the Form of the different Articles of Dress, as influencing Health.*

1. *The Head.*—THE propriety of covering the head, has been much disputed. In its favour, it is contended, that, in hot countries, it is advisable to adopt that practice, in order to prevent the violent effects of the sun, which so often prove fatal, and to obviate which, thick turbans are worn by most Asiatic nations. In hot countries, it is likewise of great importance to protect the eyes from the glare of the sun; while in moist countries, it is desirable to guard, by some species of covering, the hair from being wet. In northern climates, it is of course proper that the head should be, in some degree, protected from cold.

It is asserted, on the other hand, that many nations, even in hot climates, go without any covering on the head; that the Egyptians, who went uncovered, were reckoned stronger, and hardier, than the Persians with their turbans: that Hannibal, Cæsar, Massinissa, Hadrian, Severus, and many other distinguished warriors, always went uncovered, in the coldest or most stormy seasons: that it is a well-known and excellent rule, to keep the head cool, and the feet warm: indeed, keeping the head too warm, is a practice condemned by medical writers, as far back as Avicenna, who remarks, that covering the head too much, weakens it, and has a tendency to attract humours to that part of the body.

On this subject, the following general rules may be laid down: 1. Not to cover the head too much either by day or by night; 2. In very cold, or very hot climates, to cover the head according to the season, so as to shelter it from the cold in winter, and in summer from the still more dangerous vertical rays of the sun; 3. In dry and temperate climates, and in youth, to go with the head bare, if there be no risk of its getting wet *; 4. At all events, not to cover the head *in the house*; and, 5. It is certainly right to harden and strengthen the head as much as possible, by frequently bathing it in cold water.

The principal articles made use of as coverings for the head, are, 1. The turban; 2. The woollen bonnet; 3. The hat; 4. The leather-cap; 5. Fur-caps; 6. Night-caps; and, 7. Wigs.

1. *The Turban* is generally composed of a great number of folds of fine muslin or cotton cloth, and in hot climates it is well calculated for defence against the rays of the sun, which are often so violent, as to occasion death.

2. *The Woollen Bonnet* is of great antiquity, though now chiefly worn in the northern parts of Scotland. Unless when ornamented with feathers, or made up in a military style, it has but a homely and poor appearance;—from the looseness of its texture, also, it is very apt to imbibe, and to retain moisture;—and if the crown be not very large, it furnishes no protection for the eyes.

3. *The Hat.*—This perhaps is, on the whole, the best species of covering for the head. It may be made either light or strong, as may be most agreeable †. It may be made of different colours, as white above, which does not attract heat, and green

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* This old Saxon fashion is still preserved among the Christ's Hospital boys. They wear no hats, yet are very healthy.

† To go with the head uncovered in sunshine, is certainly improper, both for children and adults; but our common black hats are ill calculated to avert the mischief, as they do not reflect the heat. Hats of a white, or any light colour, made of straw, or similar light materials, are far preferable, particularly for people labouring in the fields, soldiers, and travellers. In very hot weather, a piece of white paper may be fastened with advantage on the crown of the hat.—*Willich's Lectures*, p. 272.

below, the reflection of which is pleasing to the eyes; and it may be made high in the crown, by which the head may be kept cooler in hot climates *. Hats are made of various materials, as of straw, for lightness; of whale-bone, for durability and strength; also of chips, of feathers, of silk, of Vigonia wool, &c.; but for general use, the best hats are made of fine wool, particularly the wool of lambs, mingled with the fur of the hare, the rabbit, the mole, or the beaver, and the hair or down of goats and camels.

It has been questioned, whether round or cocked hats ought to be preferred. Cocked hats certainly have a more martial appearance; but the round hat is more useful, sheltering the eyes from the sun, and protecting the face from the influence of the atmosphere. It is of great importance that the hat should not be too tight. The common beaver hat worn by men is a great protection to the head in all the minor accidents.

4. *Leather-Caps.*—Soon after the great improvements made in the art of preparing leather, it was found, that it could be made use of as a covering for the head. It was usual until of late to give leather-caps to children, they being cheaper than hats, and made of a material, with which boys can be permitted to use more freedom, than with any thing made of woollen. Cloth caps have now however, among the higher ranks, almost entirely superseded the more economical article.

5. *Fur-Caps.*—In Poland, and in other northern countries in Europe, and also in some parts of Persia, they wear caps of fur, made of the skins of young lambs, which, by a particular process, are beautifully curled. These caps require to be kept clean, but are well adapted for cold climates, and fitter for keeping out moisture than the woollen bonnet.

6. *Wigs.*—As the hair frequently falls off from disease or natural decay, and as with some it becomes prematurely grey, many are induced to wear artificial hair. At first, this was merely intended as a fashionable dress, or to conceal baldness †, and other defects; but it is now by many regarded a custom highly serviceable in headachs, weakness in the eyes,

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* In Russia, they use high-crowned hats, for the singular purpose of keeping their handkerchiefs in them.

† Though baldness was reckoned a deformity among the Romans, yet wigs were not invented till some time after the destruction of the republic. Julius Cæsar wore a crown of laurel to conceal his want of hair. See Strutt, vol. ii. Introd. p. 188. Long hair having always been esteemed beautiful, it is not therefore to be wondered at, that when nature is deficient in her bounty, people should be led to supply the defects of their own hair, by partially or totally adopting the harvests of other heads.—*Strutt*, vol. ii. p. 243.

and other complaints of that nature. Indeed, from defective perspiration, or other causes, a species of scurf either begins to appear, or increases on the surface of the head, *as age advances*, which must be highly prejudicial to health. By shaving the head once a-week, or oftener, that scurf is removed, and if, in addition to this practice, which cannot be too strongly recommended, any person will take the trouble to dip a flesh-brush in cold water, and to clean his head with it regularly every morning, it will be found a great preservative of health. The same wig however, ought not to serve both in summer and in winter; at least many find it necessary, to line their wigs with flannel in the winter season; and a light cotton, or silk cap, ought to be substituted for the wig, in a heated room, and in hot weather.

7. *Night-caps.*—It is much disputed, in what manner the head should be covered during the night. Some species of covering is in general necessary, to prevent the hair, when worn, from being disordered during sleep, and also for preventing the grease of the hair from soiling the pillow-case; but in regard to the quantity of covering, much must depend upon the season of the year, and the nature of the climate. In hot seasons or climates, a thin cotton night-cap may be sufficient. In cold climates a woollen covering may be required. The example of the French, and the experience of many in this country, tend to prove, that keeping the head warm during the night, prevents toothachs, and preserves the teeth.

2. *The Neck.*—It has been much doubted, whether the neck should be covered *. Women appear to suffer no inconvenience from having their necks bare, at least within doors. Throughout Europe generally however, it is usual for men

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* All coverings for the neck ought to be worn loose. The modern cravats, filled with a stiffening of cotton or wool, are extremely injurious to the part which they are intended to protect; for, by occasioning too great heat, they render the neck unnaturally sensible to every change of the atmosphere. It is rather surprising, that while we reject all coverings of the neck in children, as being troublesome and useless, we, in defiance of reason and experience, continue to encumber our own necks with such bandages.—*Willich's Lectures*, p. 274.—Neckcloths, cravats, ribbands, and necklaces of all sorts, *when they are tight*, interrupt the blood in its progress to and from the head, and occasion innumerable maladies. The neck and throat being alternately expanded and contracted in speaking, chewing, and swallowing, it is the highest degree of imprudence to obstruct its motion for the sake of appearance, vanity, or fashion. Ibid. p. 275.—Neckcloths and cravats loosely tied, and not too thick, are the only proper coverings for the neck for men; and in regard to women, it cannot be disputed, that they are better without any.—*Ibid.* p. 277.

to cover their necks, and the practice is probably calculated for the generality of the European climates, particularly in cold and moist weather; though females, being less exposed to the inclemencies of the seasons, find it less necessary. A loose cravat however, is much to be preferred to the tight stock which of late has been restored to fashion *. It would prove highly beneficial to those men who are subject to sore throats and headachs, to throw off a portion of their neck coverings when in the house.

3. *The Hands.*—To women, the beauty of a white hand and arm may be an object of great importance; but in men, though a rugged and harsh hand may not be desirable, yet too great delicacy in that respect is far from being suitable to the manly character.

The protection of gloves is desirable for some descriptions of labouring people, particularly in cold weather, for the sake of warmth; and by the higher ranks they may also be required in summer, to prevent the skin from being discoloured. The *elastic bands* and *buttons*, used to keep up gloves, obstruct the circulation.

Besides gloves, the hands are often protected from cold, during the winter season, by muffs. This is, for women, an elegant and useful piece of dress, and highly to be approved of in very cold climates. The great muffs however, which men were accustomed to wear in France, not only for keeping their hands warm, but also their stomachs, can only be recommended in very particular cases. Wearing a piece of flannel, or of fleecy hosiery, over the stomach, if necessary, is better than great muffs for the male sex, which, in this country at least, are not now in use.

4. *The Body and Arms.*—The body, or trunk, being the centre of heat and life in which the process of digestion goes forward, requires to be protected with peculiar care. In this respect the ingenuity of mankind is conspicuous, whether we consider the diversity of garments made use of, or the various substances of which they are composed, as, 1. Shirts; 2. Waistcoats; 3. Coats; and, 4. Great-coats, cloaks, &c.

The use of *shirts*, though formerly peculiar to the rich, has now become universal. It is much disputed what material for making them ought to be preferred. We have already sufficiently discussed this point. We may observe however, that care should be taken, in making shirts, to have the neck and wrist-bands full and easy, widening them when necessary.

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* Winslow ascribed many of the disorders of the head, of the eyes, and of the throat, to tight bandages about the neck, and affirmed, that until the custom of using them was given up, every remedy would be ineffectual. Vaughan justly observes, that all tight bandages about the neck render swallowing difficult, and are apt to occasion giddiness, stupor, and apoplexy.

The *waistcoat* was formerly made exclusively of woollen, but now silk and cotton are equally common; and it is found more convenient, to augment or to lessen the warmth of the body, by increasing or diminishing the number of waistcoats, than by having one thick one. The outer waistcoat may thus be made of lighter, more elegant, and more costly materials. The waistcoat is well calculated to defend the front of the body; and it is unfortunate, that modern taste should have reduced it to a size, which renders it a mere piece of ornament *.

The *coat* is the principal article belonging to the male attire. For daily use, woollen cloth is certainly to be preferred, but for elegant dress, silk in summer, and velvet in winter, are usually adopted by those who attend at courts, and on occasions of great ceremony.

In general, the arms receive no other covering than the sleeves of the shirt and coat, though some individuals, who work in their waistcoats, have sleeves attached to them, a practice that ought to be more general among labouring people than it hitherto has been.

A variety of articles are made use of in different countries, for an *exterior garment*, with a view of protecting, not only the body, but the usual dress from the inclemency of the weather. For instance, the ancient loose plaid or mantle; the modern close plaid; cloaks, great coats, spencers, and frocks.

In regard to the *loose plaid*, it was the general upper garment of the ancient Britons, and of all the other Celtic nations. It consists of a piece of cloth of a square form, and sufficiently large to cover the whole trunk of the body. It is still in use among the middling and lower ranks of people in the Highlands of Scotland, and has been reckoned an elegant piece of dress for females of the first distinction †; it has however,

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* Vide Appendix. *Means of preventing Lumbago.*

† There is a poem of the celebrated Allan Ramsay, called *Tartana or the Plaid;* which will be found in the 4to edition of his works, printed anno 1721. The following are some of the verses applicable to the plaid, as worn both by males and females.

O first of garbs! Garment of happy fate,
So long employed, of such an antique date.
Look back some thousand years, till records fail,
And lose themselves in some romantic tale,

with them given place to shawls and cloaks, which answer the same purpose.

The *cloak* is supposed to be a Spanish invention, and is calculated for concealing the person, as well as for protecting the body from cold. Cloaks, lined with fur, were anciently worn by sergeants-at-law, and by physicians.

The *great coat* is better calculated for riding in than the Spanish cloak, although strangely enough, while our infantry are made to wear great coats, the cavalry soldier has a large and cumbersome cloak. Indeed the cloak, although exceedingly comfortable, is far from being a convenient dress, as it interferes with the free use of the arms. The spencer, in dry cold weather, is preferable to the great coat, being much less fatiguing.

The carman's frock, so common at present in many parts of England, originated in the short tunic of the Saxons. It is a useful article of dress, for the description of persons by whom it is commonly worn.

5. *The Lower Extremities.*—The clothing of the thighs and legs is of very great importance with a view to health. This will be sufficiently understood when it is stated, that there is not a more effectual method of acting upon the bowels in cases of great constipation, than by applying cold suddenly to the thighs; and that the exposure of the limbs to cold and damp, is one of the most common causes of chest complaints. It is therefore very important, in the winter time, that the lower extremities should be warmly and comfortably clothed, and that all the season round, the dress worn should be so fashioned as to admit of perfect freedom in the use of the limbs, and to the circulation of their fluids. It is fortunate that the fashion of tight breeches and pantaloons, tightly buttoned at the knee or ankle, are now little in use [*]; and that loose trowsers have been substituted [†].

We'll find our godlike fathers nobly scorn'd
To be by any other dress adorn'd.
Also,
Let bright *Tartanas* henceforth ever shine,
And Caledonian goddesses enshrine.

[*] Tight leather breeches frequently cause a numbness and coldness in the thighs and hips, and are consequently a very injurious article of dress.—*Vaughan on Modern Clothing*, p. 45. It is said, that their advantages consist in their elasticity and thickness, which prevents them from forming folds, and galling the rider; in long rides and hunting matches, they are generally regarded superior to every other dress.

[†] *Coxalia*, or trowsers, were worn by the Anglo-Saxons; and it appears, from the testimony of many ancient authors, that the Gauls, Britons, and other Celtic

It was formerly the practice to have the breeches kept up by the tightness of the waistband, a very injurious fashion, which, fortunately, the invention of *braces* renders no longer necessary. Great care ought to be taken to prevent the braces being too tight, which may occasion stooping. This ought particularly to be attended to by the young and the growing.

The clothing of the *legs* during the winter season should consist of woollen stuffs; and worsted drawers, or leather, with cotton or silk or worsted next the skin, will generally be found highly valuable in our variable climate. Every woman should wear flannel drawers *.

The Feet.—It is found, that the farther any part of the body is from the heart, the more necessary is it to give that part every assistance in our power to forward the circulation of its fluids; and nothing is so effectual for this purpose as warmth. Hence, it is of the highest importance, that the clothing of the feet should not only be calculated to maintain a due temperature in them, but to protect them from the risk of damp. The materials therefore of which stockings are manufactured, has become an important consideration with a view to health; and it is of the utmost consequence, that the shoes or boots should be impermeable to moisture.

The stockings commonly worn in this country are worsted, cotton, or silk. The value of worsted in the manufacture of stocking cannot be too highly lauded; and worsted stockings ought to be universally used in this country, during the winter. We would fain press upon our fair countrywomen, the importance of this article of clothing. They will find it a means, not only of escaping the painful sensation of cold feet, but of protecting them from the still more serious afflictions of headachs, colds, stomach complaints, derangements of the bowels, and other irregularities †.

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nations, wore a garment which covered both their thighs and legs, very much resembling our breeches and stockings united. This species of close trowser, was both graceful and convenient, and discovered the shape and turn of a well-formed limb to great advantage.—*Henry's Hist.* vol. i. p. 472.

* The Emperor Augustus wore drawers, *feminalia*, in the winter season, and they were also worn by our Saxon ancestors of high rank.—*Strutt*, vol. i. part 2, p. 38.—But it does not appear that drawers were in general use in this country prior to the ninth century.—*Ibid.* p. 33.

† In Shetland, worsted stockings, of the most extraordinary fineness, are worked by the hand. so much so, that a pair of ladies' stockings has been made so fine as to pass through her marriage ring. This manufacture ought to be encouraged, as such an article may be worn by ladies, even the most fastidious about the thickness of their stockings; and it is always of consequence to a country to encourage a trade of this kind.

Cotton or silk stockings, in hot weather, are a more agreeable covering to the feet and legs *. But cleanliness in regard to this article of clothing is of the utmost importance, and the more frequently stockings are changed the better. In the summer time, cotton stockings should not be worn longer than one day.

The only additional observation which appears necessary in regard to stockings, relates to gartering them. It is indispensable that long stockings should be kept up; and gartering them has become the usual method of preventing their falling down. But a tight ligature round the leg interferes with the circulation of the blood; and it is not to be wondered at, that varicose veins, with their accompaniment of sores in the legs, should be a very common complaint with those who wear long stockings. We are of opinion, that gartering should be dispensed with altogether, and that the stocking, instead of being fixed to the leg by a tight ligature, should be tied up to some part of the body dress. Men now use socks so generally, that these observations apply principally to the other sex.

We need say nothing here of the necessity of shoes: they are now, in this country at least, generally regarded as indispensable, and are universally admitted to be of the highest importance to health. Indeed the observance of Boerhaave's maxim, to "keep the feet warm, the head cool, and the body open," will give a person a good chance of being enabled to "bid defiance to medicine."

The first step towards the use of the shoe seems to have been the *sandal*, an article of dress still worn in many parts of the world. In the colder countries, a more rude shoe has been resorted to, composed of the untanned skin of an animal, with the hair inwards; and it was observed, that some British troops in Canada, who adopted this mode of covering their feet, escaped being frost-bitten, while many of those who wore shoes, lost their toes and even their feet.

Shoes should be adapted to the natural shape of the foot, neither too large, which renders them uncomfortable, nor so small † as to cramp motion, give present pain, and prepare the parts for greater sufferings. Shoes which fit the foot never occasion corns, or the painful consequences arising from nails growing into the flesh, nor any of those excruciating maladies, which may be traced to the tight pressure of the toes, and suspended circulation in the feet. The pernicious effect of wearing small shoes is sufficiently obvious *, for they not only occasion various disorders in the feet, but render the bones of the feet immoveable. The high-heeled shoes of ladies are now happily relinquished.

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* Silk stockings were introduced into Britain in the reign of Henry the Eighth, or of Queen Elizabeth. It was some time after the introduction of silk, worsted, and thread stockings, before the cloth stockings were discontinued. —*Strutt*, vol. ii. p. 342.

† Si pede major erit, subvertit, si minor, uret.—*Horace.*

In regard to the shape of shoes, they ought to be broad in the soles, particularly under the toes; the soles should be thick, the heels low, and the upper leather soft and pliable.

The material of which shoes should be made, ought to be sufficiently compact to prevent the water from penetrating, and so elastic and soft, as to admit of an easy motion of the whole foot. They ought also to be well calculated for the soil, the weather, and the labour or exercise in which they are to be used.

The leather shoe, when not made too tight, protects the foot from injury, and does not cramp the circulation; but when improperly made, it is the source of serious mischief, occasioning those excrescences called corns, which are always painful; detrimental to health, from the diminution of exercise which they occasion; and which have sometimes even occasioned death.

In gouty cases, shoes made of felt or cloth, are recommended, as superior even to leather for pliability. In the Saxon times, shoes with wooden soles were worn by persons of the highest rank †; they are still used by our working classes, and are certainly well calculated for cold and moist weather. Although they cannot be accounted a pleasant wear, yet when the ground is wet, they keep the feet perfectly dry. On the other hand, in frosty weather, they are liable to occasion severe falls.

As one of the principal objects in covering the feet, is to keep them dry ‡, it may be proper to state the various measures which have been suggested for that purpose. In Swe-

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* In order to enable us to walk with ease, and not to injure the feet, it is necessary to avoid either extreme, that is to say, the shoes should neither be too wide nor too tight. The first is a fault rarely committed, but the second is but too common, as small feet are considered to be a beauty, by many in Europe, and by still greater numbers in Asia. By pinching the feet, the circulation is stopt, corns are produced, the feet are rendered uneasy, and it becomes impossible to walk well, or to any distance.—*Conservateur de la Santé*, p. 175.

† Strutt, vol. i. part 2; and sometimes still in France.

‡ *Cloggs* are used in the southern parts of Scotland and the northern parts of England, especially in the winter season. The upper part consists of very

den they use, between the sole of the shoe and the stocking, the bark of the birch tree, which does not admit wet. In other countries, a kind of hair-cloth, or a piece of cork, adapted to the size of the foot, is applied to the same purpose. It is with a similar view, that galloshes, cloggs, or outer shoes, are used; and they are a most valuable article of dress for all those who are exposed to wet feet, without the opportunity of changing their shoes. Those who wear cloggs however, must be careful not to forget them, as in that case the risk of catching cold will be very much increased. Various attempts have been made to fortify shoes and boots against moisture, and there is a species of boot, worn by fishermen, which is impervious to water *. Caoutchouc is very useful in keeping out wet.

In ancient times, shoes were fastened by thongs of leather; but the custom of wearing buckles was introduced prior to the reign of Queen Mary of England †. Strings and narrow ribbons are now in fashion, except at court, and on grand occasions, and are certainly preferable to the cumbersome buckles formerly in use.

The shoes of Bernard, king of Italy, the grandson of Charlemagne, had soles of wood, and were so closely fitted to the feet, as to be strictly *right and left* ‡. In favour of this latter fashion, it is contended, that the different direction of the toes on each foot, renders it advisable to have a corresponding difference in the form of each shoe. It is said that such shoes sooner wear out on one side; but this can be no objection to many, if ease and health are thereby obtained §.

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strong leather, the under part of wood, about an inch and a half thick. They are very cumbersome, but dry and warm, and reckoned very conducive to health. A person wearing clogs, is much farther from the ground than with common shoes; and as the wood resists dampness, the feet, of course, retain their natural heat, by means of which the labourer, can remain with impunity, for a whole day, in deep and wet ground.—*Fuller's Hist. of Berwick*, p. 376.

* Dr Rush states, that he met with one man about 80 years of age, who defended his feet from moisture, by covering his shoes, in wet weather, with melted wax, and another who, for the same purpose, covered his shoes every morning with a mixture composed of the following ingredients melted together: Lintseed oil a pound, mutton suet eight ounces, bees wax six ounces, and rosin four ounces. The mixture should be moderately warmed, and then applied, not only to the upper leather, but to the soles of the shoes. This composition, the old gentleman informed the doctor, was extracted from a book entitled "The Complete Fisherman," published in England in the reign of Queen Elizabeth. He had used it for twenty years, in cold and wet weather, with great benefit; and several of his friends who had tried it, spoke in high terms of its efficacy in keeping the feet dry.—*Rush's Medical Inquiries*, vol. ii. p. 318.

† Strutt, vol. ii. p. 347.

‡ Ibid, vol. i. part 2, p. 34.

§ Buchan's Advice to Mothers, p. 169.

Pattens, formerly much used by females of almost every rank in Scotland, are fast falling into disuse. They certainly are, although likely to occasion falls, a very effectual means of keeping the feet dry.

8. *Miscellaneous Articles.*

The only other articles which remain to be treated of are, *wristlets*, *dressing-gowns*, and *night garments*.

Wristlets are made of wool, and are of use for keeping the wrists comfortable in cold weather, and thereby preventing rheumatism, and other complaints.

Every person should have a dressing-gown, of flannel or lined cotton stuff, as few are exempted from the risk of being called up at night, when such an article of clothing proves most serviceable.

As to night garments, it is certain, that in the fourteenth and fifteenth centuries, personages of the highest rank slept in bed entirely naked *. Shirts and shifts are now universally worn in this country during the night. Some have also gowns, which they wear during the winter. We must again urge the importance of sleeping cool, and with loose garments.

SECT. VI.—*Practical Deductions, or Rules to be observed regarding Clothing.*

IT is evident, that the rules regarding clothing, must vary according to a number of circumstances, and, in particular, whether they are intended, 1. For the male sex; 2. For females; 3. For children; 4. For old age; 5. For sickness; 6. For a particular climate; 7. For particular seasons; 8. For the fashion of the times; 9. For the rich; 10. For the labouring classes; 11. For the army; 12. For the navy; and, *lastly*, For miscellaneous purposes.

1. *Rules for the Male Sex.*—The greater part of the preceding observations having related to the dress of the male sex, it is unnecessary again to enter into that subject. We shall only observe, that there is no greater imprudence than yielding implicitly to fashion. The dress should always feel easy, and be adapted to the season.

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* Strutt, vol. ii. p. 335. It appears from Deut. chap. 24, verse 13 that the Israelites of old slept in their clothes; but then it is more than probable, that the same raiment served them by day and by night, as is the case with the generality of Asiatic nations at present.

2. *Rules for Females.*—As ornament and taste, and what is called fashion, are the principles on which the propriety of female dress in a great measure depends, it is not to be wondered at, that improper articles should often come into use. For many years, unfortunately, the fineness of the shape of the female, was supposed to depend on the smallness of her waist; to attain which, that part of the body was compressed within the smallest possible dimensions by stays; and so tightly were these frequently drawn, that the unhappy votaress of fashion often fainted under the operation. Fortunately, although the female figure is still artificial, the extreme over-lacing formerly so prevalent, is no longer imperatively called for by fashion.

The French ladies at one time sacrificed to the graces all superfluities of dress; and the shift, with the *robe* or gown, were the only articles used in summer, during which season, the dress was so light, that a breeze displayed every part of the person, as if under a wet drapery *. In winter, the pelisse, or close cloak, or the more humble shawl, contributed to the protection of the fair wearer. But such a dress is only calculated for warm climates; and it is incredible how many fine women, (more especially in the northern parts of Europe), have fallen a sacrifice to fashions ill calculated for cold and frozen regions. The alterations which, to a certain extent, have lately taken place in female dress, afford strong proof of good sense and taste; and a becoming regard to health, simplicity, and elegance, seems now to have more influence over female fashions, than absurdity and caprice.

As by the present mode, the petticoats worn are thin and light, the use of flannel drawers in winter, and linen or cotton ones in summer, is indispensable.

The ladies' riding-habit is not unbecoming, when properly made, though it gives some women too much of a masculine appearance.

Collars, when worn tightly round the neck, as at one time they were, are highly objectionable.

3. *Rules for Children and Young People.*—This important subject has been fully treated of by various authors; but as

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* See Pinkerton's Recollections of Paris, vol. ii. p. 106, &c. Formerly the Parisian ladies carried about with them what they called a *reticule*, for holding their handkerchiefs, and other articles, as it was unfashionable to wear pockets; but latterly, even the net-bag has been abandoned, and the handkerchief is often carried by a brother, lover, or friend. "Who is that tall fellow who always walks with you?" said a mother to a daughter. The answer was, "My dear Madam, must I not blow my nose?"—*Ibid.*

it is one of peculiar interest, on which the lives of many, and the comfort of all depend, it appears to us advisable to enter on it at some length.

Cadogan, in a pamphlet on the Nursing and Managing of Children, recommends the following dress for infants at the breast, and for young children: A light flannel waistcoat, without sleeves, made to fit the body, and tie loosely behind, to which there should be a petticoat sewed; and over this a kind of gown, made of any light and thin material. The petticoat should not be quite so long as the child, the gown a few inches longer. There should be but one cap on the head, which may be made double, if thought not warm enough. The whole head-dress should be so contrived, that it may be put on at once, and so easy as neither to bind nor press the head. Shoes and stockings he thinks perfectly useless; not only as keeping the legs wet and nasty, if they are not changed every hour, but as often cramping and hurting the feet; a child will stand firmer, and learn to walk much sooner without them. Children in this simple and pleasant dress, which may be put on and off without teazing them, will enjoy the free use of their limbs, which they would very soon begin to employ, were they thus left at liberty. He proposes that this dress should be continued till the child is three years old.

The dress of children should be *light*, *simple* and *loose*. By being as light as is consistent with due warmth, it will neither encumber the infant, nor cause any waste of its powers; from its simplicity, it will be readily and easily put on, so as to prevent much exposure to cold; and its looseness will leave full room for moving and stretching those little limbs which are too often contracted, and for the growth and expansion of the entire frame. A piece of flannel round the middle, a linen or cotton shirt, a flannel petticoat, and a linen or cotton robe, are soon put on; and where fastenings are requisite, they should consist of tape, instead of pins *.

Dr Faust maintains, that the body of an infant grows more healthy, becomes stronger, and is less liable to disease, when not kept too warm, nor guarded from the access of fresh air by many garments †.

According to Dr Adair, children from their birth should be habituated to light clothing, not only by day, but in bed: he asserts, that nothing contributes more to form a sound constitution. Infants and children are less apt to have their perspiration checked, and are therefore less apt to catch cold, than persons who are more advanced in life *.

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* Buchan's Advice to Mothers, p. 161.

† Faust's Catechism of Health, p. 29.

In regard to *boys*, silly mothers are very impatient to strip them of their loose frocks; and in order that they may look like little men, make them wear tight hussar dresses, which give them a much nearer resemblance to monkeys, than to human beings. It is really astonishing, that health and growth should be perversely sacrificed to fashionable smartness. Children thus clothed, are too apt to ape the customs and actions of older people, a practice unbecoming their age, and dangerous to their health and morals.

There is an absurd notion entertained by some, that clean linen, and fresh clothes, draw forth too quickly from children their nourishing juices. In truth, they do nothing more than imbibe the moisture which the surface exhales. The clothes of children therefore, can hardly be changed too often, and it is right to have them clean every day †.

4. *Rules for Old Age.*—The aged cannot be too warmly clothed; but care should be taken to avoid an oppressive and weakening load of clothes. It is therefore necessary to have, for the latter periods of life, clothes as warm, and at the same time as light, as they can be made; and the use of fur, for instance, may often be recommended in cold seasons of the year. Indeed, as the force of the circulation after manhood, is considerably lessened, the clothing by day, and the covering by night, should be gradually increased, for many of the diseases of advanced life are produced by obstructed perspiration ‡.

Warm clothing, more especially warm bed-clothes, are proper to preserve or increase the heat of old people. From the neglect of the latter, they are sometimes, after a severe night, in cold countries, found dead in their beds. During a walk out of doors in moist weather, great pains should be taken to keep the feet dry and warm, by means of thick shoes.

5. *Rules for Sickness.* — Persons of delicate and irritable constitutions, and invalids in general, are apt to have the perspiration checked by very slight causes. Until their constitutions therefore have been strengthened, and they have been

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* Adair's Medical Cautions, 2d edit. p. 389.

† See Cadogan's Tract on the Nursing and Management of Children, in Buchan's Advice to Mothers, Appen. p. 386.

‡ Adair's Medical Cautions, 2d edit. p. 389.

gradually habituated to air and exercise, they ought rather to exceed, than be deficient in the quantity of clothing, especially in cold or damp weather. They ought to commence wearing, in the beginning of September, a flannel waistcoat over their shirt or shift; and, towards the end of October, it may be worn next the body, taking care to defend the lower limbs by the use of woollen drawers and worsted stockings. Their under waistcoat should always be thrown off at night, and changed once or twice a-week. If thrown off during the summer, instead of cutting it away by degrees, when the weather becomes mild, it may be worn over the linen, and at length totally left off till the subsequent autumn *.

In regard to clothing, as a remedy in sickness, an ingenious author, in a medical dissertation, has given an account of all the diseases in which woollen clothing has been found of service, namely, gout, consumption, hypochondriasis, dyspepsia, catarrh, rheumatism, palsy, colics, dysentery, asthma, diabetes, melancholy †, &c.; and Dr Adair affirms, that the application of a double, treble, or even quadruple piece of flannel upon the breast, in coughs, on the belly, in colics, diarrhœas, &c. and to any of the limbs affected by rheumatism, affords a degree of relief beyond what might be expected, especially if it be sprinkled with a little lavender water, or soap liniment, and a moderately hot smoothing iron be run over it repeatedly. The determination made by this means from the affected organ, is perhaps greater than by a blister; and it has this advantage, that it may be applied more frequently ‡.

6. *Rules according to the Climate.*—It is not necessary to observe an exact proportion between the quantity of clothes we wear, and the degree of latitude in which we live, but at the same time, proper attention ought to be paid to climate.

It has been justly observed however, that each climate seems to furnish those productions, both as regards food and clothing, best calculated for the use of the inhabitants; and that in the winter time, we naturally prefer garments which sit close to the body, and in summer those of a wider form. On the same principles, the people of the north prefer the former; those of the south, the latter. Hence, whilst the Greeks and Romans, unless in time of war, preferred a wide and loose garment, the Huns and Goths adopted a dress that was tight, and fitted close to their body *.

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* Adair's Medical Cautions, 2d edit. p. 293.

† Disputatio Medica Inauguralis de Vestitu Laneo; Johanne H. Gibbons, Pennsylvaniensi, Auct. anno 1786. It is certain, that in many cases, where the powers of medicine have failed, the patient has been cured by wearing thick shoes, a flannel waistcoat and drawers, and a pair of under stockings, at least during the cold seasons of the year.

‡ Adair's Medical Cautions, 2d edit. p. 499. The idea that flannel may be improved, by being repeatedly dyed, is absurd.

In regard to climate, it is proper that the clothing should keep the body in that degree of heat which is most agreeable, as well as most suitable to the functions and actions of health.

9. *Rules according to the Seasons.*—In regard to the seasons, it is highly imprudent to make it a rule, regularly to change one's clothing on particular days, as if every year, in regard to weather, were uniformly the same. Notwithstanding the authority of Boerhaave †, and the example of the celebrated Newton, who is said to have worn camlet every day of the year, it is proper to clothe ourselves in some degree according to the temperature of the atmosphere. But the changes should be gradual.

10. *Rules according to Custom and Fashion.*—Fashion may be defined, a mode of clothing approved of and established by the custom of the public in general, or at least, by the most distinguished persons in society. A particular fashion has often been introduced by an individual to conceal some personal blemish, or to set off some imaginary beauty. Fashion must therefore be ever varying, according to the taste and interests of those who take a lead in dress. Buffon has justly observed, that taking mankind in general, there are a greater number of deformed, than of well proportioned bodies, and a greater number of ugly, than of pretty faces; consequently, there are a greater number of individuals, to whom attention to dress is necessary, and to whom a change of fashion may be desirable.

In regard to clothing fashionably, it may in general be remarked, that though it is highly improper to run any risk of injury to one's health, out of a servile compliance with the modes and customs of the times, yet, on the other hand, it is idle to go to a contrary extreme, from indifference to the opinion of the world, or for the sake of singularity. Indeed, if the subject of healthy clothing were once thoroughly explained, and properly understood, there is every reason to believe, that fashions would be regulated so as to be adapted to the climate of each particular country.

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* Manuel de Santé, par Robert, vol. ii. p. 433. As a proof how much dress may differ, according to the nature of the climate, we find it recommended to the Greeks by Polybius, an ancient physician, that clean clothes should be worn in winter, but in summer, *clothes dipped in oil.*—Code of Health, 2d edit. vol. ii. p. 75.

† "The clothing, when regulated according to the seasons, should not be altered by rapid changes; and I am, in this climate, (that of Great Britain), rather of the opinion of the famous Boerhaave, whose directions were, not to give up winter clothing before the eve of midsummer's day, and to resume it the day following." Letter from the Baron Edelcrantz.—*Code of Health*, vol. ii. Appen. p. 26.

11. *Rules for the clothing of the Rich.*—In regard to the dress of the upper ranks, calculated for the climate of this country, the following is recommended: 1. A light-coloured hat in summer, and a stronger black one in winter. 2. A flannel under-waistcoat, to be worn next the skin during the day time, but always to be thrown off at night. In summer, the flannel may be of the finest texture. 3. The shirt may be made of linen or cotton. The latter is to be preferred in hot climates. 4. A waistcoat of chamois leather has been found of great use, in protecting the body from piercing colds. 5. The coat should be made to sit perfectly easy, particularly about the arms. In summer, lighter colours, and a shorter coat, should be worn than in winter. 6. Trousers are preferable to pantaloons and breeches. They should be made of thick cotton or woollen cloth in winter, and of nankeen or thin cotton in summer. Flannel drawers should be worn in winter, linen or cotton in summer. The pantaloons should be so high, as to go two or three inches under the waistcoat. They should be easy about the waistband, and kept up by braces. Leather breeches should be seldom if ever worn. 7. The stockings should be warm; and in winter, if the outer ones are of silk or cotton, the inner should be of worsted. No garters should be used either above or below the knee. 8. The shoes should be made easy, but thicker and stronger in the winter season than in the summer. Strings or narrow ribbons are preferable to buckles. Galloshes are of use in wet weather. Boots tightly fitted to the leg ought particularly to be avoided; but the half-boot is well calculated for common wear, and, with the assistance of overalls, may be made a comfortable dress for riding. 9. Great coats are well adapted for the rainy season of the year, but spencers are preferable when the weather is dry and cold.

12. *Rules for the clothing of Labouring People.*—It is evident, that the dress of the labouring classes, as adopted by many of the English peasantry, is, in various respects, a model of utility. They have two very strong jackets, (or more if the cloth be thin), and in some districts smock-frocks; they cast off one, or more of them, as they get warm at their work, and thus proportion their covering to the labour in

which they are engaged, and the effect it has upon their bodies. They always wear very strong woollen yarn stockings, and strong shoes. On such clothing, cold, or even wet, can have but little effect; and it is their judicious management of this article, which enables them to bear, with so little injury, the hardships to which they are exposed. But instead of leather breeches, it would be of great importance to the hard-working peasant, were fustian introduced, or some other strong kind of cloth, which would be warm and lasting, and less pernicious when wet. The hats of the peasantry should be covered with oil skin in wet weather. Clogs are much to be recommended.

It is certainly of great importance, to contrive the best means of clothing the poor. It is to be considered, that if they get wet, they have not always the advantage of fuel to dry their clothes, nor perhaps have they any change of raiment in their possession. Hence they are liable to many disorders, from which, by proper clothing, they might be exempted.

In general, special care should be taken, that all persons employed in husbandry, should have clothing adapted for the different seasons of the year. It is also material, that, *however warm the weather may be*, they should, immediately on ceasing to work, resume the clothes which they have thrown off while at work *. We are inclined to think, that the caoutchouc cloth might be rendered highly valuable to the day labourer.

13. *Hints regarding the clothing of the British Army, with a view to Health.*—In the former editions of this work, we entered fully into the subject of the clothing of our soldiers; but so many of the defects to which we objected, have since been remedied, that it is now hardly necessary to enlarge on this subject. The soldier is no longer soaped and powdered. He is no longer bandaged and stiffened, so as to be hardly better than an automaton; the weight of his knapsack and accoutrements is as much as possible reduced; and he is supplied with clothing, calculated, as far as practicable, to protect him from the weather. We are also happy to perceive, less of a disposition at the Horse Guards, to render the frequent alteration of dress a ruinous tax on the officer. Any established distinction of dress, and honourable appellations attached to

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* Falconer's Essay on the Preservation of the Health of Persons employed in Agriculture, p. 15 and 21.

particular regiments, ought to be carefully retained, as the Highland costume,—the Scotch Greys, &c. *.

The method of clothing the army being always a very important subject, we shall transcribe, from a preceding edition of this work, some suggestions which we then threw out on this head.

As it is of the utmost importance, not only to adopt the best plan for clothing the army in regard to the form of the dress, but also to arrange the means of having that plan properly carried into effect, the following measures are suggested:

1. That the permanent Clothing Board shall be directed to revise the system for clothing the British army, and shall make such alterations therein, as shall appear necessary for the health of the soldier, and the benefit of the service.

2. That the Board shall ascertain the prices at which the different articles can be furnished, and the rates at which the same may be contracted for.

3. That there shall be fifteen, or any other number of licensed clothiers, under the authority of the Commander-in-Chief, and of the permanent Clothing Board, to any one of whom the colonel may apply, nine of these to be licensed in England and Scotland, and six in Ireland.

4. That the colonel shall contract for the clothing as at present, and be responsible for its goodness; that care be taken to prevent any unnecessary quantity being ordered, or any clothing wasted or lost;—in consideration of that trouble and risk, the colonel shall receive an adequate allowance, according to the description of the corps.

5. That in case the sum fixed upon shall be on a moderate scale, he shall receive a guinea *per* day of additional pay, and L.50 *per annum* for every 100 men actually serving beyond 500. Thus it would be for the interest of the colonel to have his corps complete.

6. That the license of every clothier, who does not fulfil his contract properly, shall be withdrawn; that no new license shall be given him, on any consideration whatever; and that

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* The Scotch Highlanders have no claim to be considered either a braver or stronger race of men than others of his Majesty's subjects; but they have been inured to a worse climate, and reared on plainer food, and consequently must be hardier. A story is told, which strongly illustrates the advantage to be derived from preserving the Gaelic. A gentleman in the Western Islands, met a Highland soldier, who had returned on furlough to visit his friends, and congratulated him on the fame which his corps had obtained in Egypt. "How could it be otherwise," exclaimed the soldier, "when our officers told us, *in Gaelic*, to remember the honour of our country!"

the penalty in the contract, which should not be less than one thousand pounds, shall be rigorously exacted.

As under this system, no clothing will be paid for, that is not really used, a very considerable saving will accrue to the public, which would amply compensate any additional expense the proposed plan may occasion; and besides, when it is considered, how much longer the soldier will be fit for duty, when he is clothed *with a view to the preservation of his health*, as well as to military service, the benefits which the public may thence derive, in the course of a long war, *are incalculable.*

We shall only add, that the cloth worn in England, should not be considered as adapted for the tropics; for although it would be wrong to change the dress of the soldier in the field of battle, yet a light undress, for all parade and garrison duty, will be found a source both of comfort and health in hot climates.

14. *Rules for the Navy.*—This branch of the subject may be comprehended within a very narrow compass. A round hat or cap, and loose trousers, seem to be the best adapted for the sailor. A jacket of good strong cloth is necessary in cold climates; and a flannel shirt is also essential. When it is considered, how often sailors are roused from profound sleep, and that in the midst of the perspiration usual in that state, they are at once exposed to the night air, to wet and to cold, it is evidently impossible, to prevent suffering from such a change, unless their bodies are fortified by that best of coverings, flannel next the skin.

15. *Miscellaneous Rules.*—These relate, 1. To the colour of dress; 2. To mourning; and, 3. To discrepancy in the dress worn.

1. The colour of dress is far from being an unimportant point. Clothes of a light colour most repel heat, and therefore are best calculated for hot weather. Substances of a very smooth and shining surface, strongly reflect the rays of the sun; hence there might be advantage, in hot climates, in wearing hats covered with oil-skin, particularly of a green or white colour, also glazed gowns, &c.

Dazzling colours are offensive, and a person who suffers from weak eyes, will injure them still more by wearing crimson or scarlet, or being much in company with others thus dressed.

In regard to colours, it has been observed, that blue is so permanent, as to have been considered an emblem of truth;

hence the proverbial expression, " *True blue will never stain;*" whereas green has ever been accounted a mark of inconstancy, from its liability to change *.

2. It is a practice almost universal, to express a regret for the death of friends and relations, by a change of dress; and in Europe, black in general is the colour which denotes affliction. It should be kept in mind, that from the thinness of black cloth, the change of dress, when this cloth is assumed in the winter, is sometimes attended with injury to the health †.

3. It has been well observed, that nothing can be more ridiculous than a discrepancy of dress; for instance, a bare head, a thick roll of muslin about the neck, and several waistcoats, with thin breeches, silk stockings, and slight shoes.

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* Strutt, vol. ii. p. 326.

† Friendly Cautions, by Dr R. W. Johnson, p. 7.

CHAP. II.

PLACE OF RESIDENCE

The important subjects to be discussed in this chapter, may be treated of under two heads: 1. The general nature of the habitation or place of residence; and, 2. The particular construction of a house, best calculated for the preservation of health.

SECT. I.—*General Observations regarding a Habitation or Place of Residence.*

The capacity of man, to accommodate himself to every climate, arises, not only from his being able to maintain himself on an infinite variety of food, and to clothe himself according to the temperature of the country he inhabits, but from his being enabled to protect himself from atmospheric vicissitudes, by erecting habitations calculated for each particular climate.

The healthiness of a place may be considered in regard to the following particulars; 1. Its atmospheric temperature; 2. Whether it is in a high or in a low situation; 3. Whether it has a favourable or injurious exposure; 4. Whether on the sea-shore,—on the banks of a lake or of a river,—or at a distance from water; 5. Whether in the neighbourhood of woods; 6. Whether in a dry, a clayey, or a marshy soil; 7. Whether with an abundant, or a scanty supply of fuel; 8. Whether in a wet or dry atmosphere; 9. Whether on a continent, in a large island or in a small one; and, 10. Whether in a town, a village, or in the country.

1. *Nature of the Climate.*—The effects of climate on the human body, may be considered, under the three general heads of the hot, the cold, and the temperate *.

In regard to hot countries, an instance is quoted, on authority entitled to some attention, of a native of Bengal,

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* Professor Finke, of Lingen in Germany, has printed, in three volumes octavo, an Essay towards a General System of Modern Geography; or a collection of treatises on medical topography, arranged in a systematic manner.

Numas de Cogna, who died in the year 1566, at the astonishing age of 370 years [*]. This is by no means probable; although, no doubt, this individual must have reached a very advanced age. Still, hot countries in general, though in various respects calculated for the enjoyment of health, or exemption from disease, particularly during infancy, are far from being favourable to long life.

One of the strongest proofs that can be adduced of the latter position, is this, that when Kein Long, Emperor of China, in the year 1784, ordered all the old men to be collected in his extensive dominions, through the greater part of which the climate may be denominated hot, only four were brought to him, whose ages exceeded a hundred years [†]. The population of China, according to the best and most recent account, amounts to above 200,000,000. The proportion therefore, of persons exceeding a hundred, was very small. There is every reason indeed to believe, that a far greater number of individuals beyond 100 years, are now living in Scotland, where there are only about two millions and a half of inhabitants.

It is not to be wondered at, that hot climates should be unfavourable to longevity. The age of puberty is early; and the body is enervated, both by the relaxation of the fibres, and by the violent perspiration to which it is subjected.

Although there are several very dangerous diseases peculiarly prevalent in hot countries, as fevers, dysentery, liver complaints, &c. still, on the whole, the native inhabitants usually enjoy better health, than those of colder latitudes. Their food is procured with little bodily exertion; they require but little clothing or shelter; and are consequently saved from many of the daily cares which, in less hospitable regions, the inhabitants have to struggle with.

Hot countries are peculiarly favourable to the rearing of children. In such climates the management of infants is very simple; their diseases are few and seldom dangerous *. We are informed by an author of credible authority, that it is frequent, on the coast of Guinea, to see fathers who have two hundred children living at once †. This, no doubt, is owing to the plurality of wives; but unless the climate were favourable to health, such a progeny could hardly be reared by one individual.

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[*] Easton on Longevity, Introduction, p. 17. He quotes two respectable Portuguese authors in support of this fact. I am informed by a medical friend who spent some time in India, that he saw, at a very hot station on the Coromandel coast, a Hindoo, who was believed by his neighbours and friends to be upwards of 130 years of age. He evidently bore the marks of extreme age; and it was reported of him, that he had had a third set of teeth, some 40 years before this gentleman saw him.

[†] See Mémoires concernant les Chinois.—Three thousand of the oldest persons in the empire were entertained by the Emperor, on the 14th February 1785; and though, among these there were only four above 100, yet there were 182 persons in all, at the head of five generations. They were assembled, that the Emperor might shew them some marks of his paternal benevolence.

The Coast of Guinea, it is true, is unwholesome to strangers ‡, but to the natives, we are told, that it is "*mighty healthful*," and that few are afflicted with any distemper §. Scarcely any of the inhabitants however, arrive at old age. They become infirm from natural decay, much sooner than Europeans, and appear in a state of decrepitude at sixty. One instance only of longevity can be given with any degree of certainty. It was of a person named Addoo, who resided near the river Sherbro, and who remembered, when about fifteen years of age, to have been in the island of Barbadoes. This occurred during the reign of Queen Anne, or, as he expressed it, "when the King of England was a woman." Consequently, he must have been (in 1796) nearly one hundred years of age. He was alive in the year 1802.

On the whole, hot countries, though in general unfavourable to longevity, are not prejudicial to the health of those who are born in them, and who are accustomed to the climate.

Cold climates, on the other hand, are unfavourable to general health ||. The scurvy, consumptions, colds, and other disorders of such climates, are numerous, and would be still more so, were it not for the precautions which are taken to guard against them. The labour required to procure food is so great, that many are injured by it. The number of children that die, is proportionally greater than in hot coun-

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* Winterbottom's Account of Sierra Leone, vol. ii. p. 219.

† See Smith's New Voyage to Guinea, printed anno 1744, p. 202.

‡ Persons born in the temperate climates, and who emigrate to the torrid zone, seldom attain longevity. The descendants of Europeans, however, sometimes live long in those very climates. It is a remark in the West Indies, that "when a woman puts on a red woollen petticoat, (which they do when advanced in life), it is almost impossible to kill her."

§ See Smith's Account of Guinea, p. 184.—Bosman's Description, Letter viii. —And Lord Kames, in his Sketches of the History of Man, book i. sketch i, observes, that the African negroes, though living in the hottest known countries, are yet stout and vigorous, *and the most healthy people in the universe.*

|| Too great a degree of cold, is also prejudicial to longevity. In Iceland, and the northern parts of Asia, as Siberia, men attain at the utmost, to the age of only sixty or seventy.—*Hufeland*, vol. i. p. 153.—See also, p. 160.

tries, and consequently, population does not increase so rapidly. But as the food is nourishing, and as it requires great strength to resist the severities of such a climate, those who do survive, generally attain a greater age than the inhabitants of warmer regions *.

Among the instances of longevity in cold countries, those from Norway and Russia are perhaps the most remarkable. In regard to Norway, of 6929 persons who were buried in 1761, 63 had lived to the age of one hundred †. As to Russia, there died, anno 1801, 726,278 persons, of whom 216 were one hundred years of age, and 220 above it. Four are stated to have been above one hundred and thirty years old.

The temperate climates however, are best calculated for the preservation both of health and long life. Every circumstance combines for that purpose. The air, the diet, the clothing, the habitations, the education of the people, their turn of mind, the gradual alternations of weather, the certain and regular vicissitudes of the seasons, all proclaim the advantages of temperate climates. In them, as for instance, in Greece and Italy ‡, the form is the most complete; the body the most vigorous; the mind the best constituted; the passions the best regulated; and the human species, in every respect, reaches, *when well governed*, the highest degree of perfection.

2. *Situation.*—Lord Bacon was the first who recommended elevated situations, as being conducive to health, grounding his opinion, partly on the long life which is generally enjoyed by birds, owing he thinks to the purity of the air they breathe. He does not recommend however, the tops of

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* Hufeland, vol. i. p. 158, thus expresses his opinion upon this subject. In districts where mortality in general is very great, individuals may attain to a greater age than in places, for instance the warm countries of the East, where early mortality is less: a much smaller proportion of old people being found in these countries than in the northern. Lord Bacon says, that they live longer in cold and northern countries, than in hot, because the skin is more compact and close, and the juices of the body less dissipable, and the spirits themselves less eager to consume, and in better disposition to repair, and the air (as being little heated by the sun-beams) less predatory.

† Easton on Longevity, p. 142.

‡ Arcadia and Etolia, and other parts of Greece, were celebrated for longevity; and many of the most distinguished Greeks, as Pythagoras, Pindar, Sophocles, Anacreon, Plato, Zeno, &c. &c. attained a great age. Italy however, was in some respects, superior to Greece, for, in the 76th year of the Christian era, when a census of the people was made, there were 265 persons beyond one hundred years of age, in that part of Italy which lies between the Po and the Apennines.

mountains *, but rising grounds, such as Arcadia and Etolia, where the inhabitants are reported to have lived long.

The celebrated Pallas informs us, that in a province of Russia, he saw many old people in the elevated districts; whereas in the plains in that very neighbourhood, they were not distinguished for longevity.

Buffon's authority may also here be cited, in support of these doctrines. He observes, that there are generally more old men in high than in low countries. The mountains of Scotland, of Wales, of Auvergne, and of Switzerland, have furnished more examples of extreme old age, than the plains of Holland, Flanders, Germany or Poland †. We have discussed this subject pretty fully in the chapter on Air.

3. *Exposure.*—The ancients paid much more attention to the situation of a city, or of a house, in regard to exposure, than is usual in modern times; probably owing to the circumstance of the art of manufacturing glass not having been discovered, so that they could not enjoy the advantages of light, and, at the same time protect themselves from the inclemency of the seasons, except by the management of exposure.

Hippocrates advises, that a man who comes a perfect stranger to any city, should consider well its situation, and how it stands with respect to the winds, and the rising of the sun, before he pitches upon it as a place of residence ‡. He then explains the effects which may result from a city being of a southerly, a northerly, an easterly, or a westerly exposure.

In regard to villas, or country houses, Varro directs, that they should, if possible, be placed at the foot of a mountain covered with woods, in such a manner as to be exposed to the most healthy winds, and to enjoy the sun in winter, and the shade in summer §.

Columella is very particular in the directions he gives regarding the situation of a country-house. He lays it down as a general rule, that the front of the edifice should be turned away from the winds which are hurtful, and exposed to such as are salutary ‖. He says, any place which is not exposed to the sun and to dry winds, must be reckoned unhealthy.

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* This caution is certainly well founded, in as far as respects Great Britain at least; for very elevated situations being most exposed to the vicissitudes of this varying climate, must consequently be peculiarly injurious to general health. More depends upon a current of pure air than upon mere elevation.

† Buffon, vol. ii. p. 481.

‡ See Clifton's Translation of Hippocrates, "Of air, water, and situation," p. 1, 3, &c.

§ Varro de R. R. lib. 1, 12.

‖ The effects of the different winds on the human body merit attention; they

Although we are not so dependent on exposure as the ancients were, still the situation of a house in town is a matter of importance. That position ought to be preferred, at least in a northern climate, which fronts the sun in winter, and receives, in that unpleasant season of the year, all its beneficial influence.

4. *Situation in regard to Water.*—Among the particulars of the greatest importance, respecting a place of residence, is its situation with regard to water; whether it be near the sea, or a lake, or a river, or at a distance from water; and also, whether the water in the neighbourhood be wholesome, or the reverse.

The air in the neighbourhood of the sea is considered particularly salubrious. On the sea side there is more regularity of temperature, and greater mildness than in inland places, in other respects similarly circumstanced; and the breezes which come from the ocean, are impregnated with saline particles, which, though unfavourable to the growth of trees, yet are supposed to have beneficial effects on the respiration of animals *.

Lakes, or large pieces of fresh water, are not, in general, reckoned so healthy as the ocean. At the same time, the lakes in Scotland may be considered as large rivers, because they are not stagnant, but are constantly receiving and discharging their waters. In proof of the healthfulness of such situations, we may state, that there is no place in Scotland, where, in proportion to its population, a greater number of old people have been found, than in the neighbourhood of Loch Lomond, which is the largest and finest piece of water in Great Britain. Indeed there is reason to believe, that like the sea, although in a minor degree, large lakes, more especially in a mountainous country, temper the extremes of the atmosphere, and by promoting, at the same time, a free circulation of the air, are favourable to health and longevity †.

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must differ so much in various countries, that no general system can be formed. There are some good observations upon this subject in Panza's Aureus Libellus de Propaganda Vita, cap. xxviii. p. 107.

* See Buchan's Practical Observations on Sea-Bathing, p. 165. The sea spray, unless in stormy weather, when it is too abundant, is not unfavourable to the growth of the smaller plants, but seems to have a noxious effect on the leaves of trees.

† In the Account of the Parish of Luss, (see Statistical Account of Scot-

Large rivers are, on the whole, favourable to health *; but there is no air so pure and wholesome as the neighbourhood of a small stream, running over a rocky or pebbly bottom. From the purity of the air, it has been thought that a stroll along the margins of such streams, is a likely means to restore the health of invalids.

Dr Priestley observes, that the sea, and all large bodies of water, are the resources which nature has provided for restoring the salubrity of corrupted air. He found, that all kinds of noxious air were restored, by continued agitation in a trough of water, the noxious effluvia being imbibed by the water. Hence he concludes, that the agitation of the sea, and of large lakes and rivers, must be highly useful for purifying the atmosphere †.

The vicinity of good fresh water, in choosing a site for a house, is of the utmost consequence. This subject however, has been already discussed under the head of Liquid Food.

5. *Neighbourhood of Woods.*—Another circumstance to be considered with regard to situation is, the neighbourhood of woods. To be surrounded with large forests is not desirable, but it is far from an objection to a situation, to have some wood adjoining. Trees and other vegetables, during the day exhale oxygen gas, or pure air, and consequently, contribute to render the air better calculated for the use of animals. They are also of use from the shelter they afford from cold winds, and from the shade they yield against the solar rays ‡. But though wood is very agreeable at some distance from a house, it should never be planted too near it, especially in a flat country. At the same time, where the trees are very

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land, vol. xvii. p. 239), there are two lists of old people exceeding eighty years of age, amounting to twelve in number, and one aged seventy-eight; and it is there remarked, that certain families in that district seem to have an hereditary right to long life, of which some examples are given. Some years afterwards, anno 1803, a very accurate list was made up of old persons in the same parish, when it appeared, that out of a population of about 953 souls, no less a number than twenty-one exceeded eighty years of age. It has been remarked, both here, and at other fresh-water lakes, that from the greater lightness of the water, the waves are shorter, and more easily raised by the wind, than is the case at sea, where the water has more specific gravity.

* It is said, that when the plague raged in London, anno 1665, it never attacked those who inhabited the houses on London Bridge; and that many persons for their security against it, lived in barges on the river Thames, where the air was purified by the rising and falling of the tide.

† See his Experiments and Observations, vol. i. § 2. and 4.

‡ It is also said that vegetation contributes to lessen the humidity of the atmosphere, and thus to render it more wholesome. The water which falls in dews, &c. is decomposed; the pure part, or the oxygen, is emitted or exhaled, whilst the hydrogen is imbibed by the plants.

lofty, like those in America, and without underwood, or where the surface is not rendered moist by them, a woody country may be inhabited with safety.

6. *Soil.*—One of the most important inquiries connected with the salubrity of any place of residence, is whether it has a dry, clayey, or marshy soil in its neighbourhood.

Of these, the marshy is unquestionably the most pernicious, more especially if connected with clay, or much stagnant water, as it frequently emits, in considerable quantities, carbonated hydrogen, the most deleterious of all the gases. Even a gravelly situation may be rendered unwholesome, by a neighbouring marsh.

In regard to marshy situations in general, Dr Price has written a short essay, containing proofs of their insalubrity, and confirming a paper by Dr Priestley, on the noxious effects of stagnant water. The proofs he adduces, are taken from tables given by M. Muret, of several parishes in Switzerland, in which a comparison is made between mountainous and marshy countries. The difference is very great indeed. One half of all born in the mountainous district, live to the age of 47, whereas the same proportion, in the marshy parish, live only to the age of 25. In the hills, one in twenty of all that are born live to 80; in the marshy parish, only one in fifty-two.

Clayey soils, in general, are not favourable to health. As no rain can penetrate through them they must frequently be incommoded with surface-water, in consequence of which vegetation is chilled, the atmosphere is rendered cold and unpleasant, and the climate less favourable to health.

A dry soil and subsoil, on the contrary, which immediately absorb the rain that falls, is the healthiest situation for a place of residence, in so far as depends upon soil. The sandy or gravelly soils have this advantage in great perfection. A chalky soil is likewise very wholesome, as its absorbent powers tend greatly to purify the superincumbent atmosphere *. It is also considered an advantage, that a house should be distant from any great mines, or beds of minerals, more especially if they are worked, as both the air and the water are apt to be affected by them.

7. *Fuel.*—The importance of fuel, particularly in cold and damp countries, cannot be questioned; and, in such

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* Buchan's Practical Observations concerning Sea-Bathing, Preface, p. 61. Observations, p. 169.

climates, it is particularly desirable to be in the neighbourhood of so essential a necessary of life. Fuel is of importance, not only for cooking victuals, and for warmth, but for removing damp, which is of more consequence than even giving heat; and for affording light as well as heat, there being many a cottage, where, after sunset, the light they have is principally from the fuel they burn. The application of coal, or rather perhaps of oil, to the manufacture of gas for light will, in all probability, be ultimately rendered available on a scale sufficient for solitary houses at a distance from towns.

Of the different sorts of fuel generally used, as wood, turf, and coal, the first is the most wholesome when well dried; the second is unpleasant to all those not accustomed to it; the third, when of good quality, furnishes most warmth, and is peculiarly fitted for the purposes of cookery.

8. *The Atmosphere.*—The healthiness of a situation must also, in a great degree, depend on the nature of the atmosphere;—whether it is dry or moist, hot or cold, inland or maritime [*].

Egypt, so much celebrated in ancient as well as modern history, possesses one of the driest climates known; its fertility arising, not from rain, but from the overflowing of the Nile. It is a country however, very unfavourable to health. Ireland, on the other hand, which is a wet or damp country, is justly distinguished for the strength, the size, and the healthiness of its people [†]; a sufficient proof that moisture is no enemy to health, where other circumstances are not unfavourable to it. But as we have fully discussed this portion of the subject in the chapter on air, it is unnecessary to enlarge upon it farther in this place.

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[*] These particulars have already been partly discussed. See Part I. Chap. I. on Air.

[†] See various instances of longevity in Smith's Account of Waterford, p. 375; History of Cork, p. 427, and History of Kerry, 419. Doctor Watkinson has collected a number of observations regarding the salubrity of Ireland. He states, on the authority of Rutty, that though the Irish live in a constant vapour-bath, yet the moisture and temperate quality of the air is a great advantage to them; for it not only secures them from the pernicious effects of heat and drought, but likewise defends them from the ill effects of excessive cold and dryness, all which are productive of more acute and violently inflammatory disorders than are to be found among the Irish. In favour of a moist climate, it is to be observed, that, from the bills of mortality kept in Dublin, it appears that the greatest numbers of persons are buried in dry years; and that Wintringham's observation, in regard to England, that the moist seasons are the most natural and healthful, may be extended to Ireland.—*Philosophical Survey of the South of Ireland*, p. 375 and 377.

9. *Continents or Islands.*—Another point of view, in which this subject may be considered, is, whether a place of residence, situated on a continent, in a large island, or in a small one, is the most healthy.

Continents have great advantages in consequence of the general regularity of the seasons.

Large islands are certainly liable to greater variation, but they possess, at the same time, some advantages over a continent. The high winds, to which they are often exposed, drive away malignant vapours, so that epidemical distempers are comparatively rare; whilst the influence of the sea air is extremely beneficial. Dr Ingenhouz made a number of experiments, to discover the relative salubrity of the air at sea, on the coast, and inland *; and, as far as could be determined by the eudiometer, he found, that the air was most pure at sea, next in purity on the coast, still less so, with some exceptions, in the interior of the country, and worst of all in the neighbourhood of marshes and swamps. He also found, that the healthy appearance, and the appetite of the inhabitants, varied in a similar ratio.

There are few countries which, for their population and extent, afford a greater number of instances of longevity than Great Britain and Ireland. In this respect they are acknowledged to be superior to the European continent; and Whithurst asserts, on information which he says he received from the best authority, that the natives of the continent of North America, are shorter lived than those of Great Britain and Ireland; and that a *British constitution* will last longer in America than a native one †. This assertion however, is contradicted by an intelligent American author, who contends, that the probabilities of life, *in all its stages*, from its commencement to the utmost possible verge of its duration, are higher in the United States of America, than in such European countries as are esteemed the most favourable to life; and it cannot be doubted, that the facts he adduces, are strongly in favour of this statement, though it must be observed, that much may be attributed to the circumstance, that a large proportion of the inhabitants of America reside in the open country, and are not cooped up in cities *.

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* Nouvelles Experiences et Observations sur divers objets de Physique. Par Jean Ingenhouz, &c. Paris, 1789. See also Buchan on Sea-Bathing, p. 163. The great component parts of the atmosphere, namely, its oxygen and azote, are in almost all situations nearly the same. See Part I. Chap. I. on Air.

† Whithurst's Inquiry into the Original State and Formation of the Earth, second edition, in quarto, printed at London, anno 1786, p. 166.

But small islands, and peninsulas surrounded by the sea, and free from marshes, have, at all times, been justly accounted the cradles of old age. The facts in proof of this assertion are so numerous, that it would tire the patience of the reader to go over them. Nor is this observation to be confined to one latitude; it extends over all. In southern climates, for instance, the observation holds good, in regard to the Bermudas, Barbadoes, and Madeira. And, in northern climates, it is found to be the case in the Western Islands of Scotland, and in the Orkney and Shetland Isles. Lord Bacon accounts for it by observing, that sea air heats the cooler regions, and cools the hotter †.

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* See Barton's Observations on the Probabilities of the Duration of Human Life in the United States of America, published in the Transactions of the American Philosophical Society, vol. iii. p. 25. The intelligent Dr Waterhouse of Cambridge in New England, also states, that there is no region on earth, where the inhabitants attain a greater age than in that part of America. "The many instances of longevity," he adds, "which our country affords, are owing perhaps, to the mediocrity of our circumstances. We are not rich enough to be very luxurious, nor so distressed by poverty as to be pressed prematurely to the grave. No man is overwhelmed with poverty in this happy country, unless he be a drunkard."

† 1. *Bermudas.*—The inhabitants here live, some to an hundred years, and something upwards. Many do live till they are nigh a hundred, but few above. And when they die, 'tis age and weakness that is the cause, and not that any disease attends them. *Lowthrop's Abridg. of Phil. Trans.* vol. iii. p. 561.—2. *Barbadoes.* Anno 1780, there was a dreadful hurricane at Barbadoes, when fifteen people lost their lives, four of whom were above an hundred, and one an hundred and fifteen. *Easton on Longevity,* p. 171.—3. *Madeira.* This island is remarkably healthy. Dr Thomas Heberden, in Phil. Trans. vol. lvii. p. 461, has given us an account of the increase and mortality of the inhabitants, from which it appears, that the expectation of the life of a child just born at Madeira, is about 39 years, which is more than double the expectation of a child born in London. Only a fiftieth part of the inhabitants of Madeira die annually, whereas, in London, it is in the proportion of one to twenty three-fourths.—4. *The Hebrides.* It appears from Martin's Description of the Western Islands of Scotland, that the inhabitants are healthy and long lived. He mentions one person in South Uist, aged 130, who retained his appetite and understanding to the last. Many persons in the Isle of Sky arrive at a great age; but the Isle of Jura is the most remarkable for longevity; among several instances, it is mentioned, that one Gilmour M'Crain lived to keep 180 Christmasses in his own house.—5. *Orkney Isles.* Both from Martin's account of the Orkneys, and Wallace's description of them, it appears that the natives are healthy, and that several have lived beyond a hundred.—6. *Shetland Islands.* In these islands also a great age is attained. Buchanan, in his History, (lib. 1,) mentions one Laurence, who lived in his time, who married at 100 years, and died at 140, rather of old age than of any dis-

10. *Residence in a Town, in a Village, or in the Country.*—The last circumstance to be considered is, whether residence in a town, or in a village, or in the country, is best calculated for health.

Large towns have been emphatically called *the graves of the human species* *, and certainly they are not favourable to health and longevity †. We have already, in the chapter on air, entered on this subject, and endeavoured to lay down some practical rules with reference to town and country residences. Little therefore remains to be said here on the subject.

It may be urged, that many old people are found in considerable towns, and even in large capitals, like London and Paris. But the proportion is small; and it is more than probable, that the foundation of their health and strength, was laid in the country; and a good basis having been once established, their constitutions were better enabled to resist the evils of an unhealthy residence.

Villages, if properly situated, and kept under due regulation, are certainly favourable to health; but, for that purpose, they ought to be placed in a dry soil, on a shelving bank, near a running stream, the houses not too close to each other, and in single rows, rather than in regular streets. Where villages are well situated, such is their superiority in regard to health, that the best authorities have determined, that in a given number of persons at two places, namely, a country village and the metropolis, the duration of human life in the village is to be computed at fifteen, to ten and a half in London ‡.

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temper; and the inhabitants say, that one *Fairville* lived to be 180, and never drank any malt liquor, distilled waters, nor wine; his son lived even longer, and his grandchildren to a good old age.—*Martin*, p. 373.

* The Roman poet justly exclaims against

——— Pericula mille
Sævæ urbis.

† The constitution of the generality of mere citizens may be denominated weak, irritable, and easily susceptible of diseased action; and when men are crowded together, to a certain degree, they engender diseases, not only fatal to themselves, but contagious, and therefore destructive to others.—*Buchan on Sea-Bathing*, Preface, p. 7; also Work, p. 47. Friar Bacon observes, that plants growing in a dunged soil, produce articles which sooner putrify than where the soil is not dunged; and that herbs and trees growing in good air, are also more remote from corruption. It is no wonder therefore, that the milk, the flesh, the fruit, and the vegetables growing near a town, should be less wholesome than those which are produced in the purer air, and less corrupted soil of the country.

‡ Hints illustrative of the Utility of an Insurance Company for the counties of Kent and Sussex. Printed anno 1804, p. 7.

By some it is affirmed, that man is by nature a *field animal*, and seems destined to rise with the sun, and to spend a large portion of his time in the open air; to inure his body to robust exercises, and the inclemency of the seasons, and to make a plain and homely repast only when hunger dictates *. But this theory goes too far for the moralist. A country residence is certainly well calculated for mere existence; but what would become of all the pleasures of social life, and all the improvements of science and of art, if people were to live in a scattered or insulated state, and solely in the country! Though health ought to be preserved, it is not the only proper object of our attention.

The absurdity of such an idea has been well exposed by the celebrated Addison, who gives an account of a young gentleman, of a considerable estate, who had been educated by a tender mother with so much care that he was rendered good for nothing. Reading, she quickly found, was bad for his eyes, and writing made his head ache. He had got by these means a great stock of health, and nothing else; and, if it were a man's business *only to live*, there could not have been a more accomplished young man in the whole country. Such men may be truly called *field animals*, and indeed are of no farther use than to perpetuate their families, and transmit their lands and houses to their posterity †.

To retire to the country, or at least to spend the greater part of the year in it, towards the conclusion of a busy and well-spent career, may however prove, a wise and happy conclusion to these sublunary scenes ‡. In old age, quiet is desirable; and agriculture is an occupation which is sufficiently interesting to command the attention, without exciting too much the passions of the human mind. Though, in the severity of winter, old age may feel both shelter and society in a town residence, yet during the favourable seasons of the year, the country is preferable. Sir Hans Sloane, Fontenelle, and a few others, may be mentioned, whose lives, though principally spent in cities, were yet extended to a great length. But in general the proportion is about two to one in favour of the country.

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* See Dr Fothergill's Observations on Longevity, Annual Register, anno 1786, article Natural History, p. 69.

† The Spectator, No. 123.

‡ A country life, as Bacon justly remarks, is well fitted for long life; it is much abroad, and in the open air; it is not slothful, but ever in employment; it feedeth upon fresh cates, and unbought; it is without cares and envy.

The increase of population also, where a country life generally prevails, is a strong argument in its favour. In some provinces of North America, the population is doubled in fifteen years, and over all that continent in twenty-five years. How different, in this respect, from towns, which require recruits from the country.—*Price on Reversionary Payments*, vol. i. p. 276 and 277.—See Derham's Physico-Theology, vol. i. p. 263, note, regarding the great ages of people leading a country life; also Plot's Oxfordshire, c. ii. sect. 3, and c. viii. sect. 54; also Staffordshire, c. viii. sect. 91; also Phil. Trans. No. 310.

The proportion of People who die annually in Great Towns, in Moderate Towns, and in the Country, has been calculated as follows :

1. In great towns, from $\frac{1}{19}$ or $\frac{1}{20}$ to $\frac{1}{23}$ or $\frac{1}{24}$.
2. In moderate towns, from $\frac{1}{25}$ to $\frac{1}{28}$.
3. In the country, from $\frac{1}{35}$ or $\frac{1}{40}$ to $\frac{1}{50}$ or $\frac{1}{60}$.

This, of course, must be understood with exceptions: thus moderate-sized towns may be so ill situated, as to increase the proportions of deaths; and the proportion in great towns may sometimes be decreased, by a sudden increase of healthy inhabitants in the prime of life *.

On the whole, we may conclude, that a place of residence calculated for health and longevity, should be, if possible, in a temperate climate; in a situation moderately elevated;—if in Great Britain, with a southern exposure †,—in the neighbourhood of the sea, or near a rapid stream or river,—having a command of water fit for drinking,—sheltered by trees, but not environed by extensive woods or forests;—with a dry soil;—in the vicinity of abundant fuel;—with a somewhat moist, rather than a very dry atmosphere;—in an island, rather than on an extensive continent;—and either in a well-planned village, or wholly in the country.

SECT. II.—*Of the Construction of a House the best calculated for the Preservation of Health.*

WHEN the importance to comfort, health, and life itself, of well-constructed houses is considered, it is surprising that more attention is not usually paid to the planning of buildings. Indeed there are few houses, whether of larger or smaller dimensions, where some particulars have not been neglected, and which do not admit of some improvements ‡.

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* Price on Reversionary Payments, vol. i. p. 296.

† By this means it will enjoy a higher average temperature by several degrees, throughout the year.

‡ When the author presided at the Board of Agriculture, particular inquiries

But a few general observations upon this subject are all that the limits of this work will admit.

The construction of a house must depend upon the nature of the climate, and the ability or wealth of the person by whom it is to be erected. The ancient system of living in castellated houses, surrounded with moats and ditches full of water, is fortunately no longer necessary, in this country at least. Houses thus environed with a moist and unwholesome atmosphere, were unquestionably unfavourable to health.

The principles on which houses ought now to be constructed are simple: They should be capable of excluding both cold and heat,—there should not be the smallest damp,—and the air within should, if possible, be as pure as the air without †.

The invention of glass enables us to enjoy light without admitting cold or wind, while, by the management of fuel, the in-door temperature may be raised as high as can be wished. But the exclusion of the outward air is now carried to a most injurious excess, for the art of the carpenter is employed to shut it out as a dangerous enemy, instead of considering it as a useful friend. The air within doors ought to be warmer than that without, because persons in the house are usually in a state of inactivity, and are thinly clothed; but to carry the heating of apartments to an extreme is attended with many injurious consequences ‡. Uniformity, in the application of heat and cold to an animal body, renders it more sensible of the smallest variation in either, while, by being accustomed to variety, it will become, in a proportionable degree, less susceptible §.

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were made, regarding the construction of cottages, and some valuable papers on that subject will be found in the Communications to the Board, vol. i.

† The rules on these points might be extended even to the apartments which are not inhabited; for store rooms and pantries in a house may, by neglect of ventilation, become extremely unwholesome, if provisions of various sorts, animal as well as vegetable, be kept in them, especially oil, candles, fat butcher meat, whether in a raw, boiled, or roasted state, pastry, fruit, &c. The larder is frequently very judiciously placed without doors.

‡ The following are the tests by which it may be known whether rooms are clean, and contain wholesome air. When there are no cobwebs in the corners, or on the ceiling of the room, nor dust, nor straw, nor filth of any kind; when the windows are clean and clear, and no offensive smell or unpleasant sensation is experienced on entering the room from the open air.—*Faust's Catechism of Health*, p. 44.

§ Observations on Animals, with respect to the power of producing heat, by John Hunter, p. 22.

2. To prevent the admission of too much heat into a house, is, in some countries, fully as necessary, as the exclusion of cold in others. In Grand Cairo, for example, various contrivances are adopted to moderate heat, as fountains in the middle of the houses, pipes to convey fresh air, by grottoes *, and high edifices, by which the streets are shadowed from the sun. We have already adverted to the means pursued in India, for moderating the temperature of houses. In China, we are informed, that during warm weather, they have no other door than an open matted skreen, and the windows are either entirely open, or of thin paper only †. By this constant ventilation, kept up in their houses both by day and night, they obviate the ill effect that might otherwise be expected from the want of cleanliness, both in their houses and persons. This exemplifies Dr Lyne's definition of a *wholesome house*, " where a dog could get in under the door, and a bird could fly in at the window."

3. Any person who sleeps for a single night in a damp room, will discover that moisture is still more dangerous than either heat or cold. Hence the necessity of making the roof secure, and properly filling up and cementing the walls with mortar; also of avoiding the use of sea stones or sea sand, which never lose the property of attracting moisture from the atmosphere ‡.

4. We shall now consider a house with reference, 1. To the rooms usually occupied; 2. To the rooms in which we eat; and, 3. Above all, to the rooms wherein we sleep.

1. *Sitting Rooms.*—The most healthful, as well as comfortable apartments, are those which enjoy a pure and free circulation of air in summer, and the cheerful rays of the sun in winter; a proper size and height are also requisite to constitute a wholesome apartment, for low rooms are detrimental to health; particularly when inhabited by large

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* Arbuthnot on Air, p. 129. In Italy, in the construction of the houses, the whole attention is directed to guard against the summer heat, so that they are excessively bad winter houses. A gentleman had the water in his bason frozen for eight days successively in his bed-room at Pavia, a circumstance which never happened to him in Scotland. In towns subjected to great heats, high built houses and narrow streets are expedient.

† Barrow's Travels in China, p. 349.

‡ Dr Valangin observes, that the bad effects of the moist and damp air of London, are not a little increased, by the constant washing and wetting of the insides of houses, which is carried to a most unpardonable excess in most northern countries, and shamefully neglected in warmer climates, where the practice of it would be most useful. *Treatise on Diet*, p. 43.—The moisture of a wet room or staircase, must fill the house with the damp air of evaporation.

families, or when the air is carefully excluded by close doors, shutters, curtains, &c.

The sitting rooms ought to be above the ground-floor, when there is a second story; they should be so constructed, as to admit a free current of air *, and they ought to be well aired, by opening the windows in dry weather, and leaving the doors open for a certain period every day. Sometimes it may be proper to make use of what is called *pumping the room*, or moving the door backward and forward for some minutes together. In mere sitting rooms, the air is in general sufficiently pure, the furniture being commonly kept clean; much fresh air being admitted every time the doors are opened; and there being no source of taint or corruption, excepting from the breath of those who live in them.

2. *Eating Rooms.*—Every person must be sensible, that the air of a room is rendered impure by the steams of food, and that in proportion to the quality and quantity put upon the table †. The persons in the room are not sensible of the tainted atmosphere they breathe, yet any stranger feels it at once on his entrance; and it continues for a long time, unless fresh air be admitted in considerable quantities. This circumstance merits particular notice in this country, where it is the practice to sit long in the dining room after dinner. Some persons have adopted the practice of retiring into another apartment immediately after the dishes are removed, and there take their dessert and wine; but, on the whole, this plan has been found so troublesome and inconvenient, that it is but little acted upon; and can indeed be followed by those only who occupy large and commodious houses. The only other remedy is, that of opening the sashes of the window when the weather will admit of it, and in that case it is best to let down the upper sash.

3. *Bed-Rooms.*—In the chapter on Sleep, we have endeavoured to dispose of the various points connected with the

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* Private houses ought to be perflated once a-day, by opening the doors and windows to blow off the animal steams.—*Arbuthnot*, p. 209.

† Where crowds of people, and great quantities of provisions, dressed with the richest spices of the East and West, contribute to saturate the air with the most heterogeneous particles, the atmosphere must be rendered very unfit for persons in a delicate state of health. Strictly speaking, we ought not to sit in the room where we dine or take victuals, until after it has been aired. Those who can afford this luxury should be careful not to stay for hours together over their bottle in the dining room. The bad effects of such contaminated air are not perceived by the persons continuing their libations after dinner, but are sensibly felt by any one coming in from the fresh air.— *Willich's Lectures on Diet and Regimen*, p. 212.

sleeping apartment; and in a particular manner, to point out the importance of free ventilation in bed-rooms. To this rule too much attention cannot be paid, as the body during sleep, is more exposed to the impression of injurious atmospheric agencies, than when we are awake. We shall therefore be excused for repeating, that the bed-room should be large, and capable of free ventilation, that fresh air should be freely admitted during the day, and should not be completely excluded at night. Fires should not be burned in a bed room at night, nor should the bed be completely surrounded with thick curtains.

To prove how much may be done, by duly ventilating the bed-room, the following facts are stated by Dr Adair. A gentleman who had laboured for many years under a complication of nervous symptoms, for which he had obtained no relief from medicine, at length determined to try the effects of freely ventilating his bed-room, and was benefited beyond expectation. An eminent physician also informed that author, that for many years he had been occasionally subject to palpitations of the heart, shortness of breathing, great anxiety and depression of spirits, universal tremor, and other symptoms of the kind usually called nervous,—that he had made trial of many medicines of the antispasmodic kind, but had found nothing so effectual as a strict attention to preserve a due temperature of body during the night, at which time the symptoms were most apt to recur,—that in order to preserve that temperature, he found it necessary to use only a moderately thin quilt in the summer, with the addition of a moderately warm blanket in the winter, and no fire in the room, one window of which was kept open all night in the summer, and during the whole day in cold weather. This system produced sound and refreshing sleep, and almost an entire exemption from many troublesome symptoms of a similar kind, which frequently came on during the day *.

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* Adair's Medical Cautions, p. 62. In Dr Faust's Catechism of Health, p. 44, it is proposed to make two holes, one through the outer wall of the house, to open near the floor, the other near the ceiling, through the opposite inner wall or partition; the external atmosphere will enter at the hole near the floor, and dissipate the foul air through the aperture above. If placed under the grate, it would most effectually prevent that source of impure air and want of comfort, a smoking chimney.

Ladies and other delicate people pass a great deal of their time in rooms extremely well fitted up, so as to admit scarcely any outward air, except by opening the doors and windows; the air of such rooms is thus tainted with animal

Those who are obliged, by business, to spend the day in the crowded parts of cities, ought, if possible, to sleep in the country. Breathing free air in the night time, will in some measure make up for the want of it through the day; and would in many instances prove the means of preserving the health of the *citizen.*

Foul clothes should never be suffered to remain any time in the bed-room or sitting-room.

The ground floor, particularly in cities, ought not to be used for the sleeping apartments, by any one who has a choice.

Besides these particular rules, it is hardly necessary to observe, that to go into new houses, unless they are thoroughly dry, and newly painted rooms, must be particularly avoided; inattention to this rule has frequently proved fatal.

Although the well-constructed houses and the warm carpeted apartments of modern times, may be the means of preserving the lives of the delicate and sickly; the over-attention of the present day to luxurious arrangements in the houses of the rich, is far from being advisable to the robust, and the healthy. In truth many people are rendered delicate, and liable to colds, and all their consequences, by too much attention to in-door luxuries.

In Dr Beddoes' opinion, we have made ourselves too tender for the climate in which we live *. By following a different system, the Dutch are in general exempted from those colds so prevalent in this country, in almost every season of the year. The majority of the houses in Holland are the reverse of those of this country. The rooms are large and lofty; the windows of an immense size; many of the rooms have no chimney; and where there are fire-places, whole generations have passed without a fire having been

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steam and the refuse of combustion. Q. May not some of their nervous symptoms proceed from this cause?

* Manual of Health, p. 32. Dr Beddoes, though partial to the system of airing houses, strongly objects to doing so in cold and damp weather, and he has endeavoured to explain his sentiments in the following couplets:

Leave not your sashes gaping high,
When there are foul fogs in the sky,
Just lift them till the dust is laid,
Then fast again let each be made.
While frosty suns shine bright and clear,
To keep them up you need not fear.
In spring and summer, fresh and fair,
Your rooms should drink "*their fill of air.*"

once kindled. Their fires likewise, both from economy and choice, are made as small as possible. By this peculiar construction of their houses, joined to warm clothing, Dr Beddoes thinks they escape many of those disorders to which we are subjected in this country. We have already observed, that warm clothing and pots of charcoal are not calculated for our climate.

CHAP. III.

OF TEMPORARY, OR PERMANENT CHANGES OF RESIDENCE.

There are many good reasons for a change of residence—as a desire of acquiring knowledge; commercial pursuits; the difficulty, when population increases, of obtaining subsistence, and the like. At other times the change is to be traced to a restless spirit of curiosity, or to a lust of conquest. This desire for new scenes is, on the whole, beneficial; for the intercourse of nations has been the means of effecting great improvements in human societies. The discoveries and inventions of one country have been thus communicated to another, and often improved upon; the knowledge or experience of one individual may thus contribute to the comfort and happiness of millions. Indeed, those men in general, who, in ancient times were the most renowned for wisdom, as Lycurgus, Solon, Thales, and others, were travellers, and laid foundations for the prosperity and better government of their own countries, by studying the institutions of others. The same system was adopted by those appointed to lay the basis of Roman law, the principles of which are still recognised in the jurisprudence of most of the nations in Europe *. It is not however, the travels of philosophers in quest of knowledge, or of legislators for the purpose of studying foreign institutions, which are the proper objects of the present discussion; but change of residence, as connected with health, and the best means of effecting it with safety, to which we mean to confine ourselves. With this view, it is proposed briefly to treat, 1. Of travelling by land; 2. Of travelling by sea; 3. Of the advantages and disadvantages of each mode of travelling; 4. Of a temporary change of residence for the sake of health; 5. Of travelling abroad for health; and, 6. Of a change of residence with a view to a permanent settlement.

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* Barclay's Universal Traveller, 1 vol. folio, printed in 1735. Introduction, p. 1.

Sect. I.—*Of travelling by Land.*

This may be considered under two heads: 1. Travelling in the British Isles; and, 2. On the Continent.

1. *Rules for travelling in the British Isles.*

There is no country where persons can travel with so much convenience, or, taking prudent precautions, *with so much safety*, as in England. The expense is, doubtless, great; but even that does not prevent a taste for travelling. The total sum laid out for post-horses in Great Britain, is above a million *per annum*, of which nearly one-third goes to the public purse.

In England, good roads, good horses, and comfortable inns, render travelling a favourite amusement. Nothing however, can be more absurd, and, in some cases, more injurious to health, than the rapidity with which journeys are often made. We see a traveller pushing on as if the fate of the empire depended on his arriving at a given place in a certain number of hours; and when he reaches it, it is very possible that his haste proves to have been without an object, and that he is soon upon the road again.

The following rules, if duly observed, will promote the safety and comfort of travellers in these kingdoms.

1. Where persons travel for pleasure, or when their business does not hurry them, sixty miles in winter, and eighty in summer, is a sufficient distance for one day.

2. In good weather, a stage before breakfast, will have at least one advantage, it gives the traveller an excellent appetite for that meal; but when the weather is cold or moist, it is better to take breakfast before setting out. Stop at a good inn about six o'clock to dinner, and remain there all night. In travelling for pleasure merely, the same hours for meals ought to be adhered to as at home.

3. Tea taken two or three hours before bed time, is a refreshing meal, and does not prevent sleep.—Suppers should be avoided.

4. The wine at inns is in general bad; some people therefore, very sensibly take with them Madeira or Sherry, wines which are not injured by travelling.

5. It is better to submit, with a good grace, to the inconveniences of travelling, than to lose temper on the inevi-

table and numerous annoyances to which the wayfarer is exposed. Bad humour is injurious to health, and destroys the pleasure of a journey.

6. Some amusing or instructive books should always form a portion of the luggage; and perhaps some medicines, as these are not always to be had good at country towns. Travelling, particularly if the meals are irregular, and the journey rapid, is very apt to produce costiveness. This must be guarded against. Eating brown bread, and drinking malt liquor, may prevent this state from becoming troublesome.

7. In general, the sheets and beds at English inns are perfectly safe; but it is always better to pay attention to both; and to ascertain, before fixing upon the bed-room, that it has not been recently painted.

8. It is a good plan to have what may be called, *sleeping trowsers*, or " *long drawers*," of cotton, which are an excellent substitute for sheets, if there be the least apprehension of damp.

9. Air pillows, as already mentioned, are extremely useful in travelling.

10. It is not only highly proper, but sometimes essential for safety, to lock the door of your bed-room in an inn, to prevent intrusion when asleep *.

11. When about to travel in remote parts of the country, it is prudent to ascertain where the best inns are; and, by reaching early the place where you propose to stop, you are likely to secure the best accommodation it can furnish.

12. In some districts, wheaten bread is not always to be met with. Some biscuit, therefore, or loaves of bread, should be carried with you; also some tea and sugar.

13. As sitting much in a carriage is fatiguing and unwholesome, it is a useful rule, where the strength admits of it, and when the weather is fine, to walk a part of every stage.

14. It is a great advantage to have all the luggage on springs: it is thus not only carried safer, but with much greater ease to the horses.

15. It should be a rule to examine the carriage carefully before starting on a journey, and at the end of each stage to see that all the wheels, pins, &c. are right.

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* It is highly necessary that this should be attended to. I always carry with me a small auger, by which I can fasten a door where there are no bolts, or where the lock is deficient.

16. When travelling in cold weather, the best mode of securing warmth, is, to have a candle or a lamp burning in the carriage, especially at night. This useful practice was accidentally resorted to by a gentleman, who found it much preferable to fur-shoes, Shetland stockings pulled over the shoes and legs, bottles, pans of white-iron or copper filled with hot water, or any other of the usual expedients for obtaining or preserving heat. A common stable lanthorn, with oil of good quality, so fixed in it that the oil shall not be spilled by the jolting of the carriage, will answer extremely well, and may be had for half-a-crown. Or a small lamp may be fixed to the back of the carriage, for the double purpose of obtaining heat, and of enabling one to read in the night time. A lamp in the carriage is apt to deteriorate the air, unless supplied with fresh air from without, the best means of securing which is by a chimney which communicates directly with the external air.

2. *Rules for travelling on the Continent.*

The means of preserving the health of persons travelling on the Continent, have been so fully explained by two intelligent foreigners, (Count Berchtold and Dr Duplanil), that it is only necessary to lay before the reader a general sketch of their directions; referring to their works for more minute information *.

In Count Berchtold's work, there are a number of valuable hints, regarding the means of providing for the safety of the traveller's person and property. The following are the most important, particularly in reference to hot climates.

1. *Diet.*—Experience having taught people of all countries the mode of living the best calculated for their climate, a traveller, whilst he attends to what agrees or disagrees with his own constitution, should conform, as much as circumstances permit, to the customs of the inhabitants, in regard to diet, dress, exercise and rest †.

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* The books alluded to are, 1. "An Essay to direct and extend the Inquiries of Patriotic Travellers," by Count Leopold Berchtold; printed in London, in 2 vols 8vo, anno 1789; and, 2. "Medecine du Voyageur," par J. D. Duplanil, in 3 vols 8vo, printed at Paris, anno 1801. In the second volume of Berchtold's work, there is a list of twenty-three volumes in English alone, containing instructions for travellers, besides an hundred works in foreign languages, on the same subject. There are some valuable observations on this subject, in Hufeland's Art of prolonging Life, vol. ii. p. 222, chap. 10.

† The late Dr Kitchiner, in his *Traveller's Oracle*, says, "Choose such foods

2. *Water.*—Bad water is often met with in travelling. We have already, in the article on liquid food, pointed out the various means by which water may be purified; and to that portion of the work we must refer *.

3. *Exercise.*—Much exercise immediately after dinner is prejudicial, and more so in warm than in cold countries. Those therefore, who travel on horseback, or in any vehicle, the motion of which is violent, will act prudently if they eat and drink sparingly. After a long journey on foot, it is unwholesome immediately to take a plentiful meal, or to sit near a great fire.

4. *Carriages.*—Travellers in carriages are very liable to have swelling of the legs. In order to prevent their being thus incommoded, they ought to wear shoes rather than boots, to untie their garters, to alight occasionally, and to walk as often as opportunity permits, which will favour the circulation. Carriages are now sometimes contrived so as to admit of the traveller lying at length. These must be of inestimable value in long night and day journeys.

5. *Bathing.*—People ought to bathe oftener when travelling than when at home; yet they must be careful never to bathe when their blood is agitated, or the stomach full, or when the day is very hot. The cool morning and evening hours are the proper times for taking this salutary refreshment. Where bathing cannot be practised, it is advisable frequently to sponge the body with cold water.

6. *Sleeping.*—Too great precautions cannot be taken against the mischiefs arising from damp beds during travelling. It is better to lie down upon clean dry straw, than upon a damp mattress or feather-bed. Travellers should, if possible, carry with them a light coverlet of silk, one or two

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as you have found your stomach can digest easily—nutritive, but not of a heating nature, and so plainly dressed that they cannot be adulterated; the safest foods are eggs, plain boiled or roasted meat, and fruit;—touch not any of those queer compounds ycleped ragouts, made dishes, puddings, pies, &c. Above all, be on your guard against soup and wine. Instead of wine, it will often be better to drink water, with the addition of one-eighth part of brandy, which travellers may carry with them. If a man is not a very fastidious epicure, he need never fear hunger or languor, when he can get good bread and water,—*i. e.* provided he carry with him a Brunswick sausage and a bottle of brandy."

* Travellers should carry with them some charcoal powder, in a small bottle, well corked. Add a table spoonful of this powder to a pint of water, stir it well, and suffer it to stand for a few minutes. If it be then run slowly through filtering paper into a glass, it will be quite transparent, and fit for drinking. This plan was suggested by Mr Lowez of Petersburgh.

pairs of sheets, and one or two dressed hart skins, about six feet six inches in length, and three feet six inches in breadth. One of these skins should be put upon the mattress or feather-bed, to prevent any disagreeable contact, or nauseous exhalations. Sleeping with several of the windows open, in hot climates, is extremely unwholesome. Those who travel on foot should never sleep under the shade of a tree, or near a field of hemp.

7. *Fruit.*—Fresh fruits, and even the ripest grapes, relax the stomach, and a meal of them, *if bread be omitted*, will infallibly produce the most dangerous consequences. Thirst however, is more effectually quenched by eating fresh fruit, and a morsel of bread, than by drinking water.

8. *Marshy Countries.*—Particular care should be taken by travellers in unwholesome marshy districts. When obliged to stop in such situations, they should endeavour to sleep in the upper story of the house, in a room with a fire-place in it; and they should take every precaution in their power, to escape a damp bed. The diet of travellers in such situations ought to be generous.

9. *Hot Climates.*—Travellers in hot climates should abstain from meat as much as possible, particularly at night. Sweet or boiled wines, as they check the powers of digestion, and tend excessively to inflame the blood, ought to be used in the most sparing manner. Those who have perspired copiously from the heat of the sun, should shelter themselves as much as possible during the falling of the dew; and if they cannot avoid the evening damps, should by no means sit down in the open air. Perseverance in exercise or motion is the best means of preventing the fatal consequences which so often result from cold, rain, and dew.

10. *Clothing.*—Travellers should wear a flannel shirt next their skin. If their clothes have been thoroughly wet, they should endeavour to get dry beds, and clean shirts, and should rub their skins with dry flannel before they go to bed. If they cannot get dry clothes, they should keep their bodies in motion till their clothes have become dry upon them.

11. *Infection.*—A traveller should not visit an hospital before he has breakfasted, for fasting predisposes to contagious disorders. Before visiting the sick, it may be advisable to take a glass of wine. The mouth and nostrils may likewise be washed with camphorated vinegar, and during the time of being in an hospital, the spittle should never be swallowed. No one unaccustomed to hospitals should, on

any account whatever, visit them when suffering under the influence of debility, lassitude or nervous agitation; and those who have a great dread of infection ought to rest satisfied with descriptions, and avoid personal inspection of such places.

12. *Miscellaneous Articles.*—Travellers should not neglect to carry with them a bottle of aromatic vinegar, some French brandy, arquebusade, or Peruvian balsam, laudanum, James's powders, a small bottle of Hoffman's drops *, and some bark or Quinine.

Attention to these, the directions of so experienced a traveller as Count Berchtold, may be safely recommended to the traveller.

In regard to Dr Duplanil's rules, the following are the most important: 1. A traveller ought to provide himself with clothing calculated for the climate in which he proposes to reside. 2. He will require some medicines, though probably not so many as those of which the Doctor has given a list, amounting to thirty-six in number. 3. He ought to refrain from drinking liquors, as tea or coffee, very hot, as this will make him feel the cold more afterwards: a glass of water, of the temperature of the air, is the best thing he can take. 4. A rapid journey, by night or by day, is often highly prejudicial to the health. 5. On a journey, a person should continue as much as possible the habits to which he has been accustomed. 6. Nothing is more useful in a journey than to keep up a gaiety of spirit. 7. At an inn, great precautions are necessary, in regard to food, sleeping, &c.

Sect. II.—*Of travelling by Sea.*

This section of course relates both to crews of ships, and passengers. In regard to the first, the rules laid down by the celebrated Captain Cook for sea voyages, are so judicious, that they can seldom fail to preserve the health of the crew, where they are properly attended to. As to the second, the directions given by Dr William Wright of

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* The following is the receipt for making these celebrated drops: R. Alcoholis et ætheris sulphuricæ, partes æquales; misce. Six drops on a bit of sugar, are a remedy for faintness. They are likewise accounted the best antidote against sea-sickness. This may sometimes be avoided, by sleeping in a cot slung as near the centre of the ship as possible, instead of using the small close cabin beds.

Edinburgh, who was so well acquainted with subjects of that nature, must be in the highest degree satisfactory to those who are interested in such inquiries.

Captain Cook's system may be reduced to the following rules:

1. *The Crew to be at Three Watches* *.

This method is already practised in some ships of the line in our navy; but it can only be done with advantage in very large vessels. That a due proportion of sleep adds to the health and vigour of the body, will readily be granted; on the other hand nothing contributes more to the production of disease, than too little sleep, and that interrupted. At three watches, the men have time to shift and dry themselves, if wet; at two, the time allotted for rest being so short, they are prompted to throw themselves at once into their beds, in the wet condition in which they often come from the deck; and are thus exposed to all the dangers which arise from going to sleep in wet clothes. When there is no pressing occasion, a seaman ought to have within his power as much uninterrupted sleep as a common day labourer.

2. *To have dry Clothes to put on, instead of those which have been wet.*

What has been observed in the former article, will apply to this; suffice it to say, that Captain Cook paid the strictest attention to this injunction, by directing some of his officers to see that every man, on going wet from his watch, should immediately put on dry clothes †.

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* The crew of a ship of war are almost invariably divided into two watches. Thus the working seamen are divided into two bodies; one upon the deck, and the other off duty. They relieve each other every four hours, until four o'clock in the afternoon, when there are two watches of two hours each. According to this plan, each watch will have alternately, one day eight hours night sleep, and the other day four. When at three watches, they have, for two days, eight hours sleep complete, but every third day they are only allowed four hours sleep at once; and after a watch of four hours, called the middle watch, they have four hours more.

† The late Lord Mulgrave, in his voyage towards the North Pole, on his men getting wet, used to give each a pint of porter; but they were first obliged to pass before him in dry clothes.

3. *To keep their Persons, Hammocks, Bedding and Clothes, clean and dry.*

This humane commander made his men pass frequently in review before him, and saw that they had changed their linen, and were as neat and clean as circumstances would admit. He had also every day the hammocks carried to some airy part of the ship, where they were unlashed, and the bedding thoroughly shaken and aired; Captain Cook having been well aware, that, from the perspiration and breath of so many men below, every thing, even in the space of twenty-four hours, is apt to contract an offensive moisture. When the weather prevented the hammocks from being carried on deck, they were constantly taken down, to make room for the fires, the sweeping, and other cleaning operations. It may be proper to observe, that as the beds and blankets are ready receptacles for infection, too much pains cannot be taken in well airing and purifying them. When possible, fresh water should be allowed to the men to wash their clothes, as soap will not mix with sea-water, and linen washed in brine never thoroughly dries.

4. *To keep the Ship clean between Decks.*

Little need be observed on this head, as Cook's method of washing and scrubbing is now universally practised in every ship in the service.

5. *To have frequent Fires between Decks, and at the bottom of the Well.*

On this head Captain Cook laid *the greatest stress,* as an object without which every other effort would be unavailing; and in this particular, he took special care that his orders should be scrupulously carried into execution. His method was, to have iron pots, with dry wood, which he burned between decks, in the well, and other parts of the ship, while some of the crew were employed in rubbing with canvass or oakum, every part which showed the least damp. The advantages of fire are no where more manifest, than in sweetening the well, into which the whole leakage runs, whether of the ship itself, or of the casks of spoiled meat, or of corrupted water. Yet this place, once so fatal to many, may be now rendered safe and sweet, by means of an iron pot filled with fire, let down to burn in it. The washing the ship between decks, however proper it may be in fine weather, ought *never* to be practised, but when there is sufficient time given for the fires to render every part perfectly dry, before the men are permitted to return to their berths *. There may be some crevices or parts of the ship, inaccessible to the heat from the stoves. In that case, logger heads, heated red hot, and laid on sheets of tin or iron, will speedily effect the purpose. In general it may be observed, that those parts of the ship in which the air circulates least, are those in which it is most necessary to use fire, in order to expel the foul and stagnant vapours.

6. *To avoid a Draught of Air.*

Under this head, it may be observed, that permitting the men to sit in the draught of air between the ports, when open on both sides of the ship, is attended with danger: and although this practice is in many ships prohibited, yet the prohibition is far from being universal.

7. *Proper attention to be paid to the Ship Coppers.* 8. *The Fat boiled out of the Salt Beef and Pork, never to be given to the People.* 9. *The Men to be allowed plenty of Fresh Water at the Ship's return to Port; the Water remaining on board to be started, and Fresh Water from the shore to be taken in its room.*

Remarks regarding these particulars appear unnecessary, for in every ship proper attention is now paid to keep the coppers clean and free from verdigris; and the people are not now permitted to use the fat boiled out of the beef and pork. With respect to having fresh water from shore, in the place of that which has been at sea, where time will permit, effectual steps are generally taken to secure so essential an advantage.

I thought it right, in this work, to preserve a short account of the great system which does so much credit to the memory of Cook. By rigidly adhering to it, this celebrated navigator performed a voyage of upwards of *three years*' duration, exposed to every climate of the globe, with the loss, by disease, of only one man, who had evidently symptoms of consumption before he left England. In testimony of their sense of the merits of Captain Cook's system, the Royal Society, on the 30th November 1776, decreed their prize medal to him; and its President, (Sir John Pringle), justly remarked on the occasion, "That, if Rome decreed the *civic crown* to him who saved the life of a single citizen, what wreaths are not due to that man, who, having himself saved many, has also pointed out, and recorded the means, by which Great Britain may, in future, preserve numbers of her intrepid sons, who, braving every danger, have so liberally contributed to the fame, to the opulence, and to the maritime empire of their country?"

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* When the great cabin, wardroom, or officers' cabins are washed, they are never occupied till dry. Ought not the same care to be taken of the seamen's portion of the ship?

Dr Wright's Directions to Officers going to the West Indies.

The following valuable hints, though originally intended by Dr Wright merely for the use of officers going to the West Indies, are equally applicable to all persons going by sea from a cold to a hot climate.

1. Take your passage in a packet, or in an armed ship with convoy, and let your berth or cabin be in a free and well ventilated part of the ship. Transports are often crowded with soldiers, and encumbered with women and children; and unless the most strict and rigorous observance of cleanliness be attended to, in the persons of individuals, and in the berths of the men between decks, the *ship* or *jail fever* will soon break out, first among the troops, then among the seamen, and, lastly, among the officers themselves. The objections to transports, and crowded merchantmen, are not so strong now as they were in Dr Wright's day. Indeed, as it is now common to have a portion of merchant vessels intended for long voyages, fitted up for passengers, together with their luggage and provisions, many private ships are as comfortable and well regulated, as even his Majesty's or the Honourable East India Company's vessels. A convoy is fortunately unnecessary at present.

2. Those subject to sea sickness should at all times sit in good air, and be much upon deck throughout the day. They

ought also frequently to bathe the face in a bason of cold salt water. After each fit of vomiting, a small bason of tea, water-gruel, or broth, may be taken. Solid animal food should be taken sparingly, and spirits or fermented liquors abstained from for some days.

3. It is proper to observe, that salt beef and pork are drained of all their nutritive juices. Living on such food therefore, exhausts the power and action of the stomach, so that proper chyle does not enter the circulation. This, combined with lying in confined parts of the ship, never fails to produce scurvy, with all its direful consequences. The improvements which in modern times have been introduced, in preparing sea stock and ship provisions of every description, have rendered travelling by sea much less dangerous in this respect.

4. Costiveness must be prevented by attention to diet. Eat moderately of butcher meat, but as much of vegetables as possible. There is not a better, nor a more wholesome mess at sea, than pease soup, when seasoned with onions or celery seed. Exercise upon deck is conducive to health in general; it strengthens the stomach and bowels; it promotes digestion, and assists every organ to perform its functions. Some mild laxative medicine may occasionally be taken, as the aloetic pill (the Compound Rhubarb Pill) of the shops.

5. While at sea, make a hearty breakfast of tea or coffee, with plenty of biscuit and butter. The same articles may be used after dinner, or between five and six o'clock in the afternoon. Take nothing between breakfast and dinner, and be not prevailed on to partake of the *meridian bowl.* This palls the appetite, weakens the stomach, and entails a most pernicious habit.

6. Take care that the live stock be regularly fed and kept clean, otherwise they will soon be in a diseased state and die; or, if killed, will not be fit for the table.

7. Let your dinner, when on board of ship, or on shore, consist of a due proportion of animal food and vegetables; no rich sauces or highly seasoned food ought to be indulged in.

8. During dinner, take a glass of water, or good brisk small beer. The absurd practice of drinking several glasses of wine, while eating, should be abolished. After dinner, three glasses of wine, or a draught of porter or ale, may be taken; but a mixture of liquors never fails to disorder the stomach and head.

9. For supper, take a slice of cold meat and a draught of porter. Go to bed soon, and rise early. Wash your face and hands in cold salt water *.

SECT. III.—*Of the relative Advantages or Disadvantages of travelling by Sea or Land.*

IT has often been made a question, whether travelling by sea or land ought to be preferred. If one travels in a carriage by land, the seat is confined, the posture uneasy, and the company may be disagreeable. But in the cabin of a vessel, if properly constructed, every thing is neat, and often elegant; the apartment may be well warmed; all the accommodations necessary may be met with, as a good bed, a good table, the opportunity of attending to ordinary studies, or applying one's self to music, or to amusing games; and the society on board a vessel being more numerous, there is a great probability of meeting with congenial companions. All these advantages however, it is justly contended, are dearly purchased by the dangers of the sea, and the unpleasant consequences of a protracted navigation.

Unquestionably the greatest improvement of modern times, is the application of *steam* to the arts and sciences, and in particular to navigation. By this means, although a new danger is added to a sea journey, the voyage itself is rendered safer; for although a steam vessel may be blown to pieces or sunk by the bursting of its boiler, yet by being rendered more independent of winds, it is exposed to fewer of the perils of the sea; while, by shortening the duration of the voyage, the risk of meeting with storms is proportionably diminished. There is another advantage which a steam vessel enjoys, viz. that it can hardly be upset; it is not top heavy by mast and rigging, and its paddle boxes act as out-riggers. We are inclined to think also, although it may look paradoxical, that a steam vessel is less liable to catch fire than a sailing vessel. Every preparation is made to guard against this accident, in the construction of the machinery; and there are not only individuals whose duty it is to watch the state of the furnace, but the risk of fire is a source of anxiety to every one on board the vessel. With ordinary caution therefore, a steam vessel may be regarded as a safer mode of travelling than an ordinary sailing vessel; and as steam vessels are generally fitted up for passengers, while the duration of the journey is shortened, the comforts of it are incomparably increased.

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* It may be proper to add two receipts, one for preserving cream even for months, and the other for making egg tea, both of which may be useful in sea-voyages.

Mode of preserving Cream for several Weeks or Months, particularly calculated for Sea Voyages.—Take 12 ounces of white sugar, and dissolve it in some ounces of water over a moderate fire. After the sugar is dissolved, boil it for about two minutes in an earthen vessel; after which, add, immediately, 12 ounces of fresh cream, and mix the whole uniformly over the fire; then suffer it to cool, pour it into a quart bottle, and cork carefully. Keep it in a cool place, and it will continue fit for use for several weeks, or even months.

Mode of making Egg Tea.—The difficulty of procuring cream, or even milk at sea, for making tea, is well known; but eggs may be preserved in a fresh state, by being buttered, or put up in salt, or preserved in lime water, and they form a most excellent substitute. The mode of using an egg is this: Put in the whole egg, yolk and all, *in a raw state*, into a bowl, and beat up the whole thoroughly, with a table spoon; then pour in the tea gradually from a tea-pot, constantly stirring the mixture, so as to make it one uniform and homogeneous mass. It is hardly possible to distinguish this mixture, when properly prepared, from tea and rich cream. It is a very nourishing substance also, and may, with that view, be recommended to invalids on shore. An egg thus prepared, may likewise be taken with coffee instead of cream.

In regard to sea voyages for the sake of health, it is certain, that sailing is of great use in many disorders, as in consumption, asthma, rheumatism, glandular obstructions, &c., and in some respects it possesses advantages to which no other species of exercise can lay claim. The following may in particular be enumerated: 1. A person is carried very quickly through the atmosphere, and is exposed to an equable temperature. 2. Exercise *is constant*, for the ship is perpetually in motion, and the body is continually under its power, whereas, other kinds of exercise are only taken at intervals. The motion of the ship exercises the muscles of the whole body, which are constantly employed in preserving the equilibrium. 3. A voyager breathes an air peculiarly salutary, as being subject to a constant undulation, corresponding to the motion of the sea. 4. Sea sickness, which often accompanies sailing, is in many cases of very great service. It cleanses the first passages; it restores the tone of the stomach, and of its appendages; and it seems to act in a very salutary manner on the circulating and absorbent systems. 5. A sea voyage invariably, after a time, restores the appetite, strengthens the digestive organs, and forwards nutrition. 6. There is another very important effect to the invalid of a sea voyage, it produces sound refreshing sleep. Sailing therefore exercises, without fatiguing, the body; removes crudities from the upper portion of the alimentary canal; improves the appetite and digestion; produces refreshing sleep; and is thus a valuable remedy in a variety of severe indispositions.

Sailing however, is not without its disadvantages. It is certainly of use to the weak, provided the motion of the vessel be steady and even, and the sea not rough, nor the wind too high; but to be tossed about in a stormy sea, affects the strongest constitution, if not accustomed to it, and occasions giddiness, vomiting, intolerable anxiety, fainting, and terror *; and, on these accounts, of course, cannot in every case be recommended.

SECT. IV.—*Of a Temporary Change of Residence, for the sake of Health.*

IN the present mode of living, and state of society in this country, by which multitudes become the inhabitants of great towns, there is no practice more salubrious, or which tends more to renovate the constitution, than a temporary retirement to the country; and as many have not country houses to reside in, *watering-places*, as they are called, may be resorted to, not only as a cure for several disorders, but for the sake of obtaining the advantages of a change of residence †.

An ingenious author has called these places, "receptacles for the dying, corresponding to charnel-houses, where desperate cases can be sent away from notice, and by which the credit of a baffled practitioner may, in some measure be saved ‡;" and it must be admitted, that such a step, especially in cases of consumption, is seldom attended with success. But still, as the change of air, the effects of new scenery, the benefits arising from the exercise attending the journey, and the hopes of relief, are sometimes productive of the best consequences, a sojourn at a watering-place often becomes an important part of the treatment; but it should be resorted to in an early stage of the disease. As travelling however, is extremely uncomfortable in the cold seasons of the year, if the journey cannot be commenced in favourable weather, it would be better to remain at home, (fitting up apartments properly prepared for the severity of the winter season), than to be exposed to its inconveniences in bad weather, and sent from one comfortless lodging to another, which even to the healthy might prove prejudicial.

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* See the Best Method of preserving Health, p. 143.

† These doctrines are sanctioned by Hippocrates, who states, "that in long diseases, change of country is of service."—*Clifton's Hippocrates on Prognostics*, p. 389.

‡ Manual of Health, p. 32, 827, &c. &c.

Dr Beddoes, in his work already alluded to, has given the following rules regarding watering-places.

The waters of Bath, he observes, are far from being inert. They are useful to enfeebled stomachs; and they have proved of service in other weaknesses of the digestive organs. Let the rich therefore resort to Bath to spend their superfluous money, and to find amusement, if they can, in this lounger's paradise.

But persons *in confirmed consumption*, ought not to be sent from home, for the sake of any air or water we have. The strong desire of a dying person however, may perhaps render a change of place advisable. At the same time, as the whim is often transient, such persons may almost always be persuaded to desist from an undertaking, of which the chance of benefit is too often unfortunately very small.

It is certainly advisable, in hot weather, to escape from a great city into any, not unhealthy, part of the country; and children should always be in the country as much as possible.

Bathing, and artificial waters, can, in general, be had at home.

Travelling is by no means to be confounded with change of air. The agitation of the body alters the state of its functions; and the effect of fine scenery, is another consideration totally distinct.

The places of resort most agreeable, will be most salutary to some valetudinarians; but for others, those most disagreeable are best on that very account, as their stay at them will be shortened; locomotion being what is required.

SECT. V.—*Of travelling abroad for Health.*

BESIDES certain places at home, it has long been the custom in England, to send consumptive patients to warmer climates, such as the South of France, Spain, Portugal *, or Italy, for the sake of enjoying a drier and purer air. The utility of this practice is much doubted. It appears that an atmosphere, *charged with a certain degree of moisture*, is more friendly to the lungs, and to the body in general, than very dry air.

In hot sandy climates, (for example in Egypt), all the means which art can suggest, are employed, to moderate the heat, and to supply the atmosphere *with the necessary moisture.* They make wells in the middle of their houses; they receive the cool air of grottoes by means of tubes; they live in cellars in the hot weather; keep their windows open during the night, and close those carefully which are exposed to the sun during the day; they sprinkle their apartments with fresh water, or spread leaves or flowers over them; and thus the air becomes charged with the moisture which evaporates, so that the parching dryness of the atmosphere is lessened.

Dr Pugh has demonstrated, by arguments founded on experience, that the climate of Naples or of Nice, is very inimical to consumptive people. He instances a great number of English who died in a short time in those towns, a large proportion of whom would probably have been saved if they had remained in England, or chosen some parts of the South of France. He then proceeds to enumerate certain cantons of France, which he prefers to any part of Italy. He mentions, for the winter season, the environs of Avignon, of Nismes, and of Perzenas; principally because these districts are at a suitable distance from the sea, the influence of which he thinks is prejudicial in *cold weather*.

In summer he prefers Bareges or Bagneres, (both situated in a hilly country), even to the mountains of Cevennes; and these he thinks should be left about November, in order to return to the proposed winter residence.

The ingenious author, from whose work these observations are extracted is, on the whole, of opinion, that it is proper to seek for, and to prepare situable situations for invalids *in our own islands*. He maintains, that the mild and sheltered vales of Devonshire, and part of Cornwall, offer situations greatly to be preferred to those of any foreign country; and that whilst such invalids as are obliged to leave their families for the recovery of their health, may easily correspond with, or be visited by their dearest connexions, they may enjoy, on the south-western shores of England, and in other parts of the British islands, all the salutary advantages of foreign climes, without the inconveniences and the dangers of a distant voyage *.

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* In a publication, (printed an. 1815), entitled, "Information respecting Climate, interesting to a numerous class of Invalids in Great Britain," the climate of Portugal is objected to, on account of its cold nights, and the great difference of temperature between its fine and its bad weather; for though even in winter, there is sometimes a fortnight of fine steady weather, so warm, that the windows may be open from twelve to five o'clock; yet during the succeeding three weeks, the rains may be incessant, and there are no fires to counteract their mischievous effects. The inhabitants of Portugal, as of several other climates, keep themselves warm by clothing, and say, "We do not adopt the English custom of fires, because if we did, we should, like them, catch cold." On the whole, this author contends, that nothing short of St Helena, the West Indies, or the Brazils, can be worth going to sea for, in order to prevent, or to cure consumption.

When it is judged necessary to send away a consumptive patient, or an individual whose lungs render the winter of Great Britain dangerous, the island of Madeira ought to be fixed upon, as the place of exile. In that climate, the invalid is more independent of fires than in any part of the continent of Europe, and the sea voyage, both going and coming, may prove of the greatest service. When circumstances prevent so distant a voyage, the west of England, or the island of Bute in Scotland, is much to be preferred to the comfortless and fireless houses of France or Italy during a raw winter. Continental travelling, if necessary, will prove a blessing in spring and autumn; and the summer months may be spent in Switzerland.

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* Dr Regnault's Observations on Pulmonary Consumption, and an Essay on the Lichen Islandicus, considered as an aliment, and as a medicine in that disorder, printed anno 1804.

" Before taking leave of Pisa, I would say a few words concerning the climate and rate of living. The mildness of the air has always been recommended to individuals, and I found it one of the very few places, which bear out the reports concerning a warm sun, and tepid breezes in the depth of winter. The mountains protect it from the cold winds, and it receives only the soft currents of the sea air. When the Florentines are shivering with cold, and cut with the frosty blasts which descend from the Apennines, the Pisans are enjoying a genial temperature, under the same sunny but a less treacherous sky. I have seen the fountains of Florence thickly covered with ice; but near Pisa, I never observed, during the severe winter of 1815-16, any thing but the water in the cart-ruts crisped over. The right bank of the Arno should be chosen by invalids for their lodging, because the rooms of the opposite side are never enlivened by the sun beams, except in some few houses, where back chambers are open to the gardens. This causes a great difference in the relative price of lodging, on the two sides of the river. Some modern tourists have represented Pisa as a very cheap residence; but they certainly can only mean in comparison with London and Paris, and some other great capitals. Pisa is dearer than Florence or Rome, and the living is little more moderate than at Naples or Milan. The market is very well supplied, but meat, poultry, and eggs are dear. Of the butter I say nothing, as it is an article of luxury in Italy. Fine bread bears a very high price; and I am sure that no Englishman could eat the common bread."—*Wilson's Travels*, p. 306, 307.

Sect. VI.—*On a Change of Residence, with a view to a Permanent Settlement.*

Owing to commercial and other motives, numbers of individuals are led to emigrate from this country to warmer regions, in particular to the East or West Indies. Many fall early victims to the change, as they rarely know the precautions necessary to preserve their health, in new and untried situations. To persons advanced in life, this remark may not be applicable; but to the young and healthy, who are full of blood, and who live upon animal food, and fermented liquors, warm climates are frequently fatal, from their being ignorant how to accommodate themselves to such a change of circumstances *.

In order to obtain information regarding the means of preserving the health of Europeans in our East Indian settlements, the author applied to some friends, long resident in the East, (in particular to Colonel John Macdonald), by whom the following rules have been recommended to the attention of their countrymen.

Rules for the East Indies.

1. Attend to the usages of the best informed natives, adapting them to your own habits, as much as European and Oriental customs can assimilate.

2. On landing in India, take some medicine best suited to the general habit.

3. Rise early, and retire early; take morning exercise in a carriage, or on horseback, but carefully avoid getting the feet wetted with the morning dew.

Bathe the whole body every morning with cold water, and follow the native plan, of throwing the water on the head, by means of buckets or earthen pots. Many now prefer the tepid bath of from 92° to 97° of Fahrenheit, particularly if little exercise have been taken, and in feverish districts.

5. When under the influence of great perspiration, bathing ought not immediately to be resorted to. In the first instance, the clothes should be taken off, and the body rubbed down with dry towels, and after a time the tepid bath should be resorted to.

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* Valangin's Treatise on Diet, &c. p. 26. This author recommends, that persons should never think of removing from a cold to a hot climate without previous evacuation.

6. Breakfast on tea, or coffee, eating rice, with fish, or meat prepared with spices. Curries, or hot grills, will be far from injurious at this meal. We have already noticed the provision whereby nature has supplied the inhabitants of the torrid zone with condiments useful to weakened digestive organs.

7. While in motion, have no dread of perspiration, even to excess. Those who unfortunately do not perspire freely, generally soon fall victims to a climate, the heat of which almost always produces copious perspiration, even under a state of rest.

8. When under a profuse perspiration, avoid sitting down in cool or cold situations, more especially, if they be exposed to a draught or current of air. Shifting the dress in India four or five times a-day is usual. When strong perspiration has been excited, shift; taking care to rub the body well with clean, and rather coarse towels.

9. Avoid eating and drinking between breakfast and dinner. Water, cooled by means of saltpetre, should not be drunk when one is perspiring freely. A settlement remarkable for mortality, became healthy, when the inhabitants abstained totally from drinking sangaree and punch in the forenoon.

10. At dinner eat and drink freely, and *never* finish this principal meal without curry,—a dish *never* absent from the table of the natives. Avoid dishes made up with rich sauces of a greasy description, and not relieved by the intermixture of spices. Use the fine vegetables of the country freely. Fruit at first must be taken in very moderate quantities, as an early excess in this respect always lays the foundation of disorders of the stomach and intestines, and leads, *soon*, to a serious affection of the general system *.

11. The intense heat of intertropical climates exhausts the strength and animal spirits; hence wine in moderation may be taken, to stimulate the relaxed, and stagnant powers of the system, reduced by labour, or perspiration. The kind of wine is important. Madeira, or old sherry, ought to be preferred. A mixture of wines is improper. Malt

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* From want of proper attention to this point, ships arriving in India, in a short time lose a great proportion of their crews; when a pine-apple can be purchased for a few pence, and other fine tropical fruits can be had for almost nothing, the poor sailor, long deprived of esculent vegetables, and induced by such tempting productions, thinks he cannot consume too much at so cheap a rate; little aware, that this indulgence certainly leads to his destruction.

liquor is prejudicial, unless where much exercise is taken. This however, must be received with some limitation;—the bitter ale prepared for the Indian market, being by many found the best possible drink for that country. It is rather the mixing of spirits and wine with ale that is injurious, than the ale itself. Ale therefore, in moderation, and when used alone, is a safe and good drink for India.

12. An hour's sleep, after dinner, is a refreshing indulgence, required by the nature of the climate. If high perspiration have taken place during this rest, it may be necessary to shift, previously to taking an airing in a carriage, or to walking out in the cool of the evening. This rule does not hold universally, many having bilious fever produced by indigestion in the siesta. This perhaps may be ascribed to their taking it when exposed to unwholesome winds in the open air. We have, in the Chapter on Sleep, laid down some rules as to the siesta.

13. It is best to abstain from eating supper.

14. Care must be taken not to sleep with open windows, exposed to the pernicious influence of the land-winds. The quantity of covering must be light, as perspiration, brought on by much clothing, is insalubrious.

15. On mornings when the bath is not used, the feet and *angles of the body* should be well washed, using a towel-corner wetted in water, to rub with; the rest of the body also should be washed, previous to an early morning ride.

16. Captains of ships, their officers and passengers, too frequently omit to provide themselves with *light clothes* calculated for the climate. They land *heavily covered*, and malignant fevers are frequently brought on, by keeping the system thus oppressed with excess of heat, and perspiration lodged and soured in clothes, used again and again for want of proper changes. Many of the common sailors and soldiers suffer from this cause. If a cheap light kind of dress were prepared for them, numberless lives would be saved.

17. On getting unavoidably wet, shift *instantly*, taking care to dry the body well. Many destructive fevers arise from inattention to this simple preventive.

18. The head, when bared, must never be exposed to the sun.

19. On being sensible of any unpleasant feeling in the mouth, or on experiencing any thing like a shivering lassitude, or any pains in the arms or limbs, a cathartic medicine must be taken, (rhubarb and calomel), with the advice of some medical gentleman. Half the deaths in hot climates, arise from inattention to the early symptoms of disease.

20. Huxham's Tincture of Bark, for bracing the relaxed system, after such a tendency to disorder, is an excellent medicine.

21. After violent exercise *, such as *tennis* or cricket, avoid lying down on the grass, more especially towards evening.

22. Redoubled attention must be bestowed in hot climates to keeping ships clean. The hammocks and all the bedding, should be well aired and fumigated. The decks below should be occasionally mopped with warm vinegar. Similar precautions should be taken in barracks.

23. Avoid exposure to the meridian heat as much as possible; at the same time, when it is absolutely necessary to brave it, due attention and care will prevent its injurious effects. After unavoidable exposure during the heat of the day, the clothes should be thrown off, a light undress or dressing-gown with long drawers put on, and perfect quiescence in a cool room resorted to: A cup of tea is the best drink in such circumstances.

24. Avoid fermented liquors, excepting at meals; and also every mental agitation, calculated to irritate the system.

In regard to the West Indies, the following are the directions given by an intelligent physician, the late Dr William Wright of Edinburgh, who, from his great experience of the climate, and the diseases in the West Indies, was eminently qualified to furnish many valuable hints to emigrants to that, or to similar climates.

Directions by Dr William Wright, to Officers and others who commence a Residence in the West Indies.

1. On landing †, keep out of the heat of the sun; or, when out of doors, use an umbrella. For some time, walk at leisure, and take no violent exercise in the heat of the day ‡. *When a man is fatigued, sickness is at hand.* In other words, he is liable to a remittent fever, or to receive contagion from

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* A bag truss, or suspension bandage is of great use, where violent exercise is taken, and should indeed be invariably worn in hot climates.

† After fasting long at sea, people should eat sparingly when they land, and ought to return to full meals by slow degrees, otherwise they will suffer for it. Light food, as white fish or poultry, and mulled Port, are the articles best calculated for the stomach in that tender state.

‡ Great colds succeeding great heats, are productive of diseases: even cold nights after hot days. Many of the acute diseases of Europeans in hot countries, are occasioned by their exposing themselves incautiously to the nightly dew.—*Arbuthnot on Air.*

human subjects, or from miasmata, arising from salt marshy grounds near the sea.

2. As forts and garrisons in the West Indies, are on the low lands near the sea, they are generally unhealthy. If you have a choice, take a house on a rising ground, remote from swamps, and well clothed with timber trees and succulent plants.

3. Riding is a healthy exercise, especially before breakfast: and sea-bathing is salutary, but remember, *never to bathe, when you perspire profusely, or when cold;* and you ought not to stay above one minute in the water at a time.

4. If at any time you are caught in a shower, keep in motion until you get to your own house, or that of a friend. Then get a complete shift of clothes; after stripping, let your skin be well wiped with a dry towel; but by no means rub the body with rum, as by it the pores are constricted, and a fever may be the consequence. The best cordial, in this case, is a warm bason of tea, coffee, chocolate, or broth, according to the time of the day. As you value your life, abstain from warm toddy, punch, or negus.

5. There are a number of excellent fruits in all the islands; take care that they are fully ripe before you partake of them; and eat little of them at a time, in the morning or in the afternoon.

6. Strangers are much tormented with musquitoes, but after some time pay no attention to them. Be sure, at night, to draw down the musquito net close all around, and brush it well inside with a large towel, to kill such musquitoes as may still be there.

7. Chigres are a species of flea that burrow into the feet and toes; at first they occasion an itching, and then a little red lump, which becomes painful. A negro is the best hand to pick them out; and a little snuff may be put into the cavity.

8. In a well-regulated regimental mess, no one sits long after dinner; an officer's duty will not admit of it; he is either on guard, or has the evening parade to attend to. He need never want amusement or exercise; in his quarters, he may have books or musical instruments, or he may employ himself in drawing; and if he has a turn for natural history, so much the better; he will find ample subjects for his purpose; in all the islands the scenery is new and beautiful, often magnificent and grand.

Besides the emigration from a cold to a hot country, a change of residence frequently takes place from a hot to a cold climate, and sometimes from a dry to a damp one, or the reverse.

To change from a hot to a cold climate is generally prejudicial, unless where persons have been accustomed, from their infancy, to bear cold. The frame cannot stand so great an alteration, and the consequent differences in point of food, clothing, &c. that must take place. Unaccustomed to take precautions against cold, and not believing them necessary, those who are subject to such changes suffer from perpetual neglect and imprudence; and hence they frequently sink under the inclemency of the seasons, and the hardships to which they are subjected. The want of heat is particularly felt, insomuch, that an Italian nobleman, who found himself miserable in this country, from the cold he experienced, declared his full conviction, "That the moon of Italy, had more warmth in it than the sun of England."

To go from a dry to a damp climate, is unfavourable to health. Hence several of those emigrants who were compelled to exchange the dry climate of France, for the humid atmosphere of Great Britain, complained, that they suffered much from the change; and, in particular, that their eyes were greatly affected by it. Among the emigrant priests however, who lived with great regularity, the mortality was very inconsiderable.

On the other hand, to go from a cold and damp, to a dry and warm climate, more especially at an advanced period of life, may tend to promote health and longevity. It is said, that old people, who go even from Portugal to the Brazils, get a new lease of life. The attentions which are necessary in a bad climate, render a good one, where they are not so essential, delightful to the indolence of old age; and old people may, in such climates, be almost constantly in the open air, which is highly favourable to the preservation of health *.

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* The best change, according to Dr Short, is, when persons who are natives of dry, wild, and mountainous places, whose fibres and vessels are naturally too tense, whose juices are strong and grumous, and who are addicted to choler and melancholy, take up their residence in a low, wet, and oozy situation. Those persons, on the other hand, who are born in low, wet, or watery places, and whose fibres and vessels are weak and lax, thrive best on high, dry, wild, rocky, and mountainous districts. See Short's Observations on Bills of Mortality, p. 60.

CHAP. IV.

OF THE CUSTOMS AND HABITS WHICH INFLUENCE HEALTH.

In a practical work like the present, it is unnecessary to engage in a philosophic discussion as to the influence of custom and habit on the mind or feelings. It is sufficient to observe that, whatever be the cause, we are so much influenced by them, that mankind are well described as the children of habit, which truly becomes a second nature. The preservation of health, in particular, undoubtedly depends greatly on attention to a number of customs and habits, or *minute particulars*, which, when taken singly, appear trifling and unimportant, but which, when combined, and regularly followed, are of the utmost consequence.

In discussing this subject, we shall consider, 1. Those customs and habits which the author has personally found most beneficial; 2. Those which have been recommended to him by respectable authority; and, 3. Those practices which are either doubtful, or supposed to be injurious.

SECT. I.—*Customs and Habits found to be beneficial by the Author.*

1. The rule of going early to bed, and rising early, is certainly preferable to the opposite system; but can, by custom, be to a certain degree dispensed with, provided *regularity* be attended to in both these respects *. This concession however, does not sanction what are called *fashionable hours*, or sitting up all night, and sleeping during a large proportion of the day, which is evidently preposterous, and must be ruinous to the health, and injurious to the interests of those who have any business to carry on.

2. The young and the middle aged, if in health, ought not

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* The late Earl of Panmure, who lived to be eighty-two years of age, acted on this maxim. He retired to rest between eleven and twelve, and rose in his latter years at eight;—earlier in his younger years.—*Code of Health*, 2d edition, vol. ii. App. p. 69.

to spend above eight hours in bed*, or from eleven at night to seven in the morning in summer, and from twelve to eight in winter. If however, the remaining sixteen hours *be properly employed*, the eight devoted to repose need not be regretted. If fewer hours suffice, it is better to sit up at night, than to rise in the morning by candle-light.

3. After rising, it is an excellent custom, to wash and dress immediately, or, at any rate, before breakfast, so as to be ready to go out when business or exercise requires it. If dressing be deferred till after breakfast, a great deal more time is wasted, or lounged away, than is compatible either with healthful exercise, or with the rules according to which a man of business ought to conduct himself.

4. The morning toilet, when properly gone about, is of great importance to health. The chief object to be attended to, is cleanliness of person even to minutiæ: a daily change of linen is desirable; a frequent one is indispensable.

5. A careful attention to the eyes, where they are either weak, or liable to become diseased, cannot be too rigidly enforced. When they are slightly inflamed, it is useful to apply the corner of a towel, dipped into hot water, for about a dozen of times. If this do not prove sufficient, the eyes, *with the lids closed*, ought to be steamed by boiling water. Even violent inflammations are lessened or cured by this application. After using the hot water, the eyes ought to be bathed in cold water, either by repeatedly applying to them a towel dipped in water, or by plunging the face into a basin of cold water, and keeping the eyes open. We prefer the former mode of applying the cold water, when there is inflammation; but keeping the eyes open under water on washing in the morning, will be found an excellent way of strengthening them, and of warding off ophthalmic colds†.

6. If a wig be worn, as it ought to be by all persons after sixty (for reasons to be afterwards explained, see Sect. 2), the head should be washed every morning with cold water‡; and

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* The great Lord Mansfield recommended eight hours; and it was a favourite maxim with him, "*to cultivate sleep.*"

† See Appendix, *Extract from German Edition of* "*Code of Health and Longevity.*"

‡ An old clergyman in Scotland has been accustomed, for above forty-five years, to go early in the morning to a small rivulet below his garden, and to bathe his head in cold water, in winter as well as in summer, breaking the ice if necessary. *Code of Health*, 2d edition, vol. ii. Appendix, p. 62.—The application of a wet towel to the forehead, is also of use to remove headachs, arising from intoxication, or from the flow of blood to the head.

it is an excellent practice, to use a strong flesh-brush, as we have already recommended, for that purpose.

7. Every morning the feet should either be washed in cold or tepid water, or cleaned with a wetted towel, and great attention ought to be paid to the cleaning and paring of the nails.

8. In shaving, use cold water, for hot relaxes the skin, and occasions sore throats and colds. The razor may be dipt in hot water, which improves the edge.

9. Attention to the teeth is of the utmost importance; but much brushing, or the use of salt, and acid or acrid substances, with a view to give them a brilliant white, must not be resorted to, as they may destroy the enamel. The brushes are more for the advantage of the gums, than of the teeth, and might properly be called *gum-brushes.* The best are those made for rubbing up and down, or vertically, for the others do not prevent the growth of tartar between the teeth. Many of the common tooth-powders are extremely dangerous, destroying the enamel of the teeth, which, there is reason to believe, is the only substance in the body that is not constantly renewed, so that, when once lost, it is never regained. Powdered charcoal is recommended by some, as likely to prevent injury from any putrid substances adhering to the teeth or gums; but others prefer oatmeal, as softer and less acrid. The tooth powder which is made of the Indian beetle-nut, is the best in the world. It whitens the teeth without injuring them, and is of inestimable service to the gums. It is to be regretted that it is not more in use in this country. When the teeth are neglected, the gums become first diseased, the breath becomes tainted and noxious, the teeth then rapidly decay, and the food, not being properly masticated, various dyspeptic complaints result.

10. The mouth and tongue should be carefully cleaned every night and morning, and the throat gargled with *cold* water, a practice that should never be omitted by those who are subject to sore throats.

11. The use of flesh-brushes, which I consider to be the best of all frictions *, is an effectual means, both of preserving health, and of warding off the infirmities of old age. The eyes might be longer preserved in a perfect state, by the use of soft brushes made of hair. By brushing the ears, and be-

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* Rough woollen gloves may likewise be used; or horse-hair ones for the sciatica, and other complaints. The Asiatics prefer quilted silk gloves. Flesh-brushes are now made with long handles, so that a person can brush his own back. The best are made of *whisk,* or a kind of Venetian grass, to be had at 350, Oxford Street.

hind them, deafness may be warded off, and in some instances has been cured. By the same means, sore throats may generally be prevented. Any weakness in the arms may be obviated by brushing them night and morning; and by applying friction of the same sort, to the stomach and thighs, a degree of vigour is given to the body, of which few persons are aware, otherwise the practice would be more generally adopted. The feet also should be rubbed with the flesh-brush after they are cleaned *.

12. It is an excellent custom to be frequently in motion. Chairs should be made use of as seldom as possible. When walking within doors, you have as much circulation of the blood, or exercise, as when without. The only difference is, that the air is less pure †.

13. Lolling on couches or *ottomans*, (a modern fashion), is calculated for the lazy and luxurious Turks, but ought to be reprobated by the active and the industrious, unless when real fatigue renders it necessary.

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* The following communication, transmitted to the Author by a distinguished literary character, in March 1809, proves the advantages of friction.

" Sir John Sinclair having recommended the use of the flesh-brush to a gentleman, when at the age of sixty-seven, he desired to know, when was the best time for applying it; the answer was, whenever most convenient. Being in London, and consequently denied the exercise he usually took in the country, and being accustomed to retire early to bed, he was subject to wakening in the night. He took advantage of these opportunities, to strip off his shirt and flannel waistcoat, to jump out of bed, and to brush, (holding a brush in each hand), till he was tired, and then went to bed again. This plan answered, and his sleep became unbroken, till his usual hour of rising.—He had, for many years, applied cold water, at all seasons, as soon as he was out of bed, but now changed it for the flesh-brush, using it during fifteen or twenty minutes: this continued for about three months; and it is remarkable, that a cutaneous eruption, somewhat resembling a nettle springe, which often appeared upon parts of the body, entirely ceased, nor did it re-appear till after the application of cold water, always followed by the brush, but in a degree seldomer, and less than formerly. It is more than a year since he began the use of the brush, and his health in general has, upon the whole, been better *than for thirty years before.* He had been much subject to rheumatic pains, but they have been *brushed* away with great success, once only excepted in the hip, and then, by applying salt and water, strong enough to swim an egg, rubbing it in with the hand before a fire, on going to bed, two of these applications carried it off. He does not know to what to attribute his good health, under God, *unless to the flesh-brush*, as no other variation in his habits of living took place. It appears to him, that it answers the purpose of moderate and healthy exercise, assists in freeing the skin from all impurities, and keeps the pores clear and open. The brush is applied to the back by means of a leather strap across its centre, thus rendering three brushes unnecessary. The harder the brushes are, the better for the operation."

† Those who dictate to their clerks, or are consulted, ought to execute their business either walking or standing, which will relieve both body and mind.—*Cheyne's Essay on Health*, p. 203.

14. Those who read or write much, should adopt the practice of sitting at a sloping desk, to prevent stooping, and the bending of the head and breast, so pernicious to the health of sedentary people.

15. Reading in bed is a most pernicious custom; and if by candle-light, cannot be too strongly reprobated. People ought never to lie in bed, except for sleep, or when compelled by illness. Reading, when walking about, is likewise a bad practice; and it is not to be recommended even in a carriage, unless the motion be slow, or the roads very smooth.

16. Tallow candles are much more favourable to the eyes than wax ones. It is a very common opinion that a bright light is bad for the eyes, and consequently that the late improvements in the art of lighting houses by means of gas have an injurious tendency. But it is not much light, but a glaring light that is injurious; thus, let any one attempt to write with his face to a window, which faces a bright sky, and he will immediately perceive that he is straining his eyes; but if he turn his side to the window, although he has still the same light on the paper, it is no longer painful. At night, in the same way, if the eye catch the source of light, it suffers; but if the light come from behind, it is found, however bright, to be most grateful. The endeavour to get rid of the glare, has led to the use of what invariably proves fatiguing to the eyes, viz. ground glass shades. Thus, a bright argand gas burner is covered with a ground glass globe; the consequence is, that there is a painful glaring light thrown over the whole room; the eyes suffer; and every one complains that *gas* gives too much light. No one who has ever lit a gas light at noonday can talk of too much light from it. The best light for study is a steady clear flame, and certainly the best means of obtaining this, is by the *flat jet (uncovered)* burner of pure gas, shining, not on the eyes, but on the work on which they are employed.

17. The following is a practice which I have long found effectual in removing slight feverish disorders, or a heat in the hands, which prevents sleeping. Get a bason or flaggon of very cold water, and after baring the arms to the elbow, gradually and alternately immerse each hand and arm in the water, for twenty or thirty times, and then rub them dry. It must be done *slowly*, for the heat is only extracted from that part of the skin which comes in contact with the surface of the water. The evaporation also from the skin, during the time of its exposure to the atmosphere, must have a good effect in cooling

it. Slight fevers may thus be stopped at their commencement.

18. For the recovery of strength, after a severe illness, the following practice is particularly recommended. Take a crust of good bread, dip it, piece by piece, into a glass of very old rich wine, as Canary, or Tent, or Madeira, and then eat it about twelve at noon. No cordial can be more restorative.

19. Wearing flannel next the skin, is, on the whole, a good practice, more especially after fifty years of age, and during the cold and moist seasons of the year; but it is essential, in order to derive advantage from it in the day time, to put it off while in bed *.

20. I have found, by the experience of thirty years, that the Spanish practice of wearing a waistcoat of chamois leather, is highly useful to prevent chilliness, and warding off rheumatism. No cold can penetrate it, and it is light.

21. It is of the utmost consequence to preserve an erect posture. All the organs of the body are then placed in their natural situation, and circulation is greatly promoted. The aged ought particularly to attend to this maxim.

22. But, above all, it is of essential importance to health, to preserve an equanimity of temper, and not to sink under the disappointments of life; to which all, but particularly the old, are frequently exposed. If subdued by misfortune, or if he indulge despondency, health cannot long be retained.

A variety of other rules connected with the subjects of air, diet, exercise, digestion, sleep, &c. will be found in the preceding chapters of this work. But by attending to the rules just enumerated, the author has derived so much benefit, that he earnestly recommends them to the attention of others, who may adopt such of them as are best calculated for their respective situations, and modes of living †.

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* Manual of Health, p. 220. Some wear muslin next their skin, under the flannel, for the sake of cleanliness; others, instead of a flannel shirt or waistcoat, wear a loose piece over the breast or stomach, and even round the back, which can easily be laid aside at night, and put on in the morning.

† The author feels less hesitation in recommending these rules; for by attending to them, after having been reduced to a languid state, he has now enjoyed an almost uninterrupted state of good health for above forty years; and he can go through as much personal and mental exertion, as the generality of much younger men, and that without observing any strict regimen, or secluding himself from society.

SECT. II.—*Rules and Customs recommended on respectable Authority.*

A number of rules for the preservation of health have been given by different authors, sometimes dispersed in large publications, and at other times abridged into maxims or aphorisms. They are generally however, far from being calculated for active life, or fit for those who live in society, *as it is now constituted.* We shall select those which seem to be best entitled to the attention of the reader.

1. The fat and unwieldy, ought to abstain from liquids as much as possible; for great drinkers are more apt to be corpulent than great eaters. Even water is fattening, either from its own qualities, or by promoting digestion, as appears from an experiment detailed in the foot-note *.

2. Wearing a wig is an excellent practice for the old, the delicate and the studious. It tends to prevent headachs, and nervous weakness in the eyes; more especially if the head be shaved daily. Washing the head with warm water and soap, or, if necessary, shaving it, clears off all scurf, and promotes perspiration. The head should afterwards be washed well in cold water, with the addition of a few drops of spirit of lavender or Hungary water. This prevents the catching of cold, and greatly assists in preventing deafness †.

3. Two things ought to be particularly avoided; Giving up the body entirely to idleness; and, Eating again before the last meal is digested ‡.

4. It is of the highest importance to pay particular attention to one's temperament, and constitutional weaknesses. If a person be sanguine or choleric, he has a tendency to inflammation; or, if phlegmatic, he is likely to be affected with chronic or nervous disorders. In regard to constitutional weaknesses, every man, in a physical sense, has his weak side; and diseases generally fix themselves in those parts which are

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[*] Two pigs of the same litter were fed with an equal quantity of milk, but the milk given to one of them, was mixed with an equal quantity of water. After a month's feeding, they were both killed, and the one to which the water had been given, was found to be much larger and fatter than the other. See Cheyne's Essay on Health and Longevity, p. 204. This, so far as it goes, is an important experiment to the feeder of stock, as well as to the physician.

By an obstinate forbearance from drink, some dropsies have been cured; and in the case of the miller of Billericay, in Essex, corpulency was got rid of, by abstinence from liquids.

[†] Cheyne's Essay on Health, p. 198.

[‡] Best and Easiest Method of preserving Health, p. 201.

by nature debilitated. In some persons, diseases attack the lungs; in others, the stomach, the liver, and so on *. Wherever such weaknesses exist, every exertion should be made to strengthen, or at least to save the parts subject to them.

5. The preservation of the eyes depends much upon a moderate use of light, and it is a fact confirmed by experience, that exposure to a glaring light is extremely hurtful. Many persons have lost their sight by living in rooms with white walls, or by having their windows so situated as to reflect strongly the light of the sun. The light admitted into rooms, may be so proportioned by shutters, venetian blinds, or curtains, that it may be perfectly sufficient for use, but neither stronger nor weaker than is necessary †.

6. An unseasonable change of clothing is often pernicious. A gentleman was deprived at once of all motion, by violent, and almost intolerable spasms in his legs, which seemed to affect his whole body. Various conjectures were formed as to the cause, and many remedies were in vain resorted to. At length it was suggested, that the spasms might proceed from wearing, instead of worsted, silk stockings, to which he had not been accustomed; and the weather at that time was cold. Having substituted worsted stockings for the silk, he recovered ‡.

7. It is an excellent rule in regard to diet, that every man should eat and drink *a proper quantity of what best agrees with his constitution*, avoiding overloading the stomach, or taking aliment difficult to digest.

8. Nothing can be more absurd, or more pernicious, than the custom of taking food in a *very hot state.* It spoils the teeth, injures the stomach, and is, consequently, the source of much mischief §.

9. A frequent change of posture appears to be favourable to health. One of Lord Bacon's rules was, "Never to keep the body in the same posture above half an hour at one time ‖."

10. Unpleasant intelligence, ought, if possible, to be communicated when the stomach is empty. Tumultuous mental agitation renders that organ powerless and paralytic, produces

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* Hufeland, vol. ii. p. 284.

† Letter from the Baron Edelcrantz. Code of Health, vol. ii. Appen. p. 19. Sailors, by habituating themselves to looking at remote objects, appear to become long-sighted.

‡ Thoughts on the Relaxation of Human Bodies, p. 57.

§ Harper's Economy of Health, p. 39.

‖ Lord Bacon's Works, vol. i. p. 429.

derangement of the intestines, and disturbs the circulation of the blood. Distressing communications, when improperly made, are in the highest degree injurious *.

11. Dr Beddoes considers the following as the best piece of advice which he has given in his very able work on health †. In order to render people less liable to take cold, and, at the same time, greatly to preserve their eyes, he recommends them to adopt the rule, of "sitting a good deal during winter in a room without fire." We cannot however, concur with Dr Beddoes on this subject. No doubt, it is wrong to sleep in a room with a fire; but we know of no method more likely to produce colds, indigestion, and bowel complaints, than chills while at rest within doors. The more comfortable therefore, in our opinion, that a house is made, so much the better, provided due attention be paid to free ventilation during the day, and to purity of air.

12. Mr Stewart, the celebrated traveller, strongly recommended more attention, than is paid in this country, to the ventilation of the rooms, especially when they are full of company. It is well known what pernicious effects result from drawing up both glasses in a crowded coach, even in a journey of a few hours: what mischief then may not be expected, when numbers are shut up in small rooms, in an atmosphere vitiated by their breath, and by the effects of fires and candles? The mode of admitting air, as practised at the Royal Infirmary of Edinburgh, where it is directed upwards, would be the best mode of counteracting this evil ‡.

13. Mr Stewart likewise condemned the practice of men going about all the morning, muffled up in spencers and great coats, and women in furs and cloaks, whilst in the evening, they sit down to dinner imperfectly or lightly clothed. It is difficult to determine, whether a life spent in the foul atmosphere of crowded rooms, or the custom of loading the stomach when the body is cold, does the most mischief.

14. Celsus has strongly recommended to the healthy, to diversify their mode of life;—to be sometimes in the city, and sometimes in the country;—sometimes at rest, but to take frequent exercise;—sometimes to use the warm bath, and sometimes the cold;—to anoint sometimes, and at other times

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* See Cadogan on the Gout, p. 68.

† See Manual of Health, p. 228.

‡ The same plan is very skilfully carried into effect in St George's Church, Hanover Square, London.

to neglect it;—to avoid no kind of food that is in common use;—sometimes to eat in company, and at other times quietly at home;—in short, by a varied life, to be always prepared for any event that may happen *.

15. Celsus has likewise cautioned his readers, not to destroy, in the gay days of pleasure, by excesses of any kind, that vigour of constitution, which is the best support under infirmities; the loss of which, though ultimately unavoidable, yet by care and attention, may for a time, be averted.

SECT. III.—*Of doubtful or injurious Customs.*

There are three practices, which, notwithstanding all the objections urged against them, continue too frequent, more especially among the lower orders of society. These are, taking Tobacco, Opium, and Ardent Spirits.

1. *Tobacco.*

Tobacco was originally brought into fashion in England by Sir Walter Raleigh. The dry plant having been first imported in any quantity from the island of Tobago, was thence named *Tobacco;* and its use having been introduced into Europe by a French envoy named Nicot, it has obtained the botanical name of Nicotiana Tabacum. It belongs to the class of drugs called narcotics, and is possessed of many of their most noxious qualities. Its effects, when first taken, are in the highest degree nauseous and disgusting; and it is justly contended, that the excessive use of tobacco, in whatever shape it is taken, heats the blood, hurts digestion, wastes the finer part of the fluids, and relaxes the nerves †. In medicine, its operation has been found so uncertain and violent, that its use is discarded by all judicious practitioners ‡. It is proper however, to distinguish the four modes in which it is used: 1. Smoking; 2. Taking it as snuff; 3. Chewing; and, 4. Plugging the nostrils.

1. *Smoking.*—The first mode of using tobacco in this country, was to inhale its smoke. When introduced in the reign

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* See Grieve's Translation of Celsus, b. i. chap. i.

† Harper's Economy of Health, p. 39.

‡ A woman applied to the heads of three children affected with ring-worm, a liniment consisting of powdered tobacco and butter, soon after which they were attacked with giddiness, violent vomiting, and fainting. Death has been produced by a child swallowing the tobacco taken from its father's pipe. The juice of green tobacco instantly cures the stinging of nettles.

of James the First of England, that monarch was so much disgusted with the new fashion, that he wrote a book on purpose to expose its unhealthiness and offensiveness. But Lord Bacon informs us, that it had come, even in his time, immoderately into use, and that it affected men with a secret kind of delight, insomuch that they, who had once inured themselves to it, could hardly leave it off. He admits moreover, that it has power to lighten the body, and to shake off weariness *.

The objections to smoking have been very ably stated by Dr Waterhouse. The first is, the waste or vitiation of the saliva, which, if lavishly thrown away, removes one of the strongest sources of hunger and digestion. Smoking is likewise particularly injurious to lean, hectic, and hypochondriacal persons: it creates an unnatural thirst; it leads to the use of spirituous liquors; it increases indolence; it confirms the lazy in the habits they have acquired; and, above all, it is pernicious to the young, laying the foundation of future misery †.

These objections are certainly powerful, and ought to be seriously considered by those who have no particular motive for adopting this custom. At the same time, there is reason to believe, that this practice is not injurious to persons who live in cold and moist climates. It is at least soothing and comforting to seamen, soldiers, and others exposed to inclemencies of weather.

A list was transmitted to me, of forty persons above eighty years of age, in some of the Western Islands of Scotland. Of these, no fewer than thirty, or three-fourths, were reported to have been addicted to the use of tobacco; and it is probable that some of the remaining ten followed the same practice, though it was not adverted to at the time ‡.

Having procured from Greenwich Hospital a list of all the old men in that establishment, exceeding eighty years of age, it appeared that there were ninety-six in all, of that age, of whom there were thirteen above ninety, and one above a hundred, and yet they almost all used tobacco §.

There is likewise a return of the pensioners in Kilmainham

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* Lord Bacon on Life and Death. Code of Health, 2d edition, vol. iv. p. 164.

† See Cautions to Young Persons concerning Health; a public lecture by Dr Waterhouse of Cambridge, New England, inserted in the Code of Health, 2d edit. vol. iv. p. 532, &c. The remonstrances of Dr Waterhouse against *cigars*, as detrimental to youth, merit particular attention.

‡ Code of Health, vol. ii. Appendix, p. 177.

§ Ibid. 2d edit. vol. iv. p. 164.

Hospital in Ireland, in which there are thirty-one above eighty years of age, all of whom, with the exception of one, were in the habit of using tobacco, and many of them freely *.

I also received an account of the number of persons above eighty years of age, in the workhouses of London, Westminster, and Southwark, and some of the neighbouring parishes; from which it appeared, that out of 471 persons who had attained that age, 181 used tobacco; and more than eighty of them used it freely †.

It does not appear therefore, that a temperate use of tobacco, can be considered as unfavourable to longevity. At the same time, an excessive use of it certainly produces many injurious consequences. Frequent and much smoking makes the teeth yellow and black; and clay pipes are apt to canker the teeth to such a degree as to infect the breath, and produce putrid ulcers in the gums. Smoking, when carried to excess, even impairs the mental faculties. Those who are addicted to this habit should smoke slowly, and never so long as to occasion thirst. But if drink be indispensable, let them take small beer, ale, tea, or any other diluent liquor, but neither spirits nor wine. They should never use a pipe that has been in the lips of any other person, as diseases have thus been propagated; and indeed they should always use a clean pipe, or one waxed at the extremity; for the oil of tobacco, settling on the sides of the pipe, is a most acrimonious substance, which may be accidentally absorbed, and mixed with the fluids of the body ‡.

In India, the mode of using the smoke of tobacco, differs in some degree from common smoking. The principle of the hookah is to make the smoke pass through water; and it is fortunate that it does so, as the stuff smoked is generally an extremely deleterious compound, of tobacco, conserves, and charcoal; and as the suction required to draw the smoke through the long tube and extensive apparatus, is too much for the muscles of the mouth, so that the assistance of the chest is called for, the smoke is drawn into the lungs. It seems probable, that the lives of those unfortunate debauchees, who give up many hours a-day to smoking the hookah, are saved by the

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* Code of Health, vol. ii. Appendix, p. 186. It is to be remembered however, that military and naval pensioners are the survivors of picked lives, and of men whose strength of constitution has been thoroughly proved. The habits of such individuals therefore, cannot be admitted as entitled to be regarded as rules of longevity.

† Ibid. p. 189.

‡ Willich's Lectures on Diet and Regimen, p. 531.

purification of the smoke in the water. It is not to be doubted however, that, even with this advantage, the constant use of the hookah, sooner or later, produces the most injurious effects on the system. The natives of India frequently bring on intoxication, by adding other narcotics to the tobacco they smoke.

2. *Taking Snuff.*—Powder from the dried leaves, and sometimes even the stem of tobacco, is the basis of all the different sorts of snuff. But there are several, though secret additions made to the tobacco in the manufacture of snuff, as salt, urine, salt of ammonia, powdered glass, &c. In some cases snuff may be of use as a medicine. By the sneezing which it occasions, it very powerfully promotes the mucous discharge from the nostrils, and thence it is occasionally of service in headachs, and complaints in the eyes; but that benefit is lost when snuff-taking becomes a habit. On account of its narcotic quality, snuff is improper in cases of apoplexy, lethargy, deafness, and other diseases of the head. Besides, any liquid productive of the same effects, is much preferable to a powder, which, though at first stimulating, may obstruct the nostrils *. The use of snuff is likewise extremely dangerous to the consumptive, to those afflicted with internal ulcers, or who are subject to spitting of blood. The objections to this custom have been summed up in the following terms: It is an uncleanly habit; vitiates the organs of smell; taints the breath †; ultimately weakens the faculty of sight, by withdrawing the humours from the eyes; impairs the sense of hearing; renders breathing difficult; depraves the appetite; and, if taken too copiously, gets into and affects the stomach, injuring, in a high degree, the organs of digestion ‡.

The only arguments which can be urged in its favour are, that it is a sociable custom; fills up some vacant time §;

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* See Willich on Diet and Regimen, p. 533. If this stimulus be too violent, it may bring on so profuse a discharge of matter from the delicate membrane lining the nose, as to relax and corrode it. Many find small snuff injurious; from its fineness, it gets into the stomach, where it causes great disturbance.

† The women of fashion in France, seldom take snuff on that account, till they are married, which is paying but a poor compliment to their husbands.

‡ Willich on Diet and Regimen, p. 534. Yet Frederick the Great, who notwithstanding a life of great personal and mental exertion, lived to the age of 74, took enormous quantities of snuff;—he wore a tin pocket to hold it.

§ Professed and inveterate snuff-takers, it is calculated, devote several hours in the week, giving an aggregate of many days in the year, to this indulgence. "The celebrated Senteuil experienced vomiting and horrible pains, amidst which he expired, in consequence of having drunk a glass of wine, into which had been put some Spanish snuff."—Paris Pharmacologia.

keeps people awake when they feel inclined to fall asleep at improper hours; furnishes occasionally an agreeable stimulus; and is a cheap luxury for the poor.

3. *Chewing Tobacco.*—This seems to be the most exceptionable and filthy mode in which the plant is taken. The celebrated Cullen, in his lectures on the Materia Medica, observes, that a constant chewing of tobacco destroys the appetite, by depriving the constitution of too much saliva. Some do not eject the saliva, but prefer swallowing the nasty mixture. This often produces faintness, palpitation of the heart, trembling of the limbs, and, sooner or later, some serious chronic inconvenience *.

As a proof of the great mischief occasioned by chewing tobacco, it is well known to the attendant physicians at the hospitals of Haslar and Plymouth, that numbers of the sailors and marines who are sent there, have a trick of chewing tobacco, and swallowing the spittle, as an expedient for getting out of the service, in consequence of the complaints which are thus produced. Indeed, when the practice has been long persevered in, it brings on an incurable emaciation and weakness †.

4. *Plugging the Nostrils* ‡.—It is a custom with some persons to put small rolls of tobacco up the nostrils, thus protecting from cold and inflammatory affections, the moist membrane which lines the nostrils, and descends through all the branches of the wind-pipe, as far as the air we breathe penetrates. It would be desirable to ascertain by experiment, how far such a plan is of use, and whether some means of hardening that membrane, when morbidly delicate, against atmospheric influence, could not be devised.

2. *Opium.*

Opium is the inspissated juice, (*Papaver Somniferum*), which exudes from the heads of a species of poppy when incisions are made in them. The use of this celebrated medicine, though not mentioned by Hippocrates, can be clearly traced back to Diagoras, who was nearly his cotemporary; and its importance and value have been sufficiently established by the high estimation in which it has been held by succeeding physicians of different nations. The Turks, who were forbidden by Mahomet to drink wine, intoxicate themselves with opium; and they carry the eating of it to such an extent, as to destroy the energy of the stomach, to debilitate all the other organs of the body, and even to undermine the faculties of the mind. The visage and general appearance of the opium-eaters in Turkey, are the most disgusting imaginable; and tired of life, and the dismal prospects before them, they often commit suicide [*].

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* Dr Waterhouse's lectures. See Code of Health, vol. iv. p. 558.

† Thoughts on the Relaxation of Human Bodies, p. 57.

‡ Sir Wm. Temple recommends putting a leaf of tobacco into the nostrils for an hour each morning, with a view of drawing rheums in the eyes and head, through their proper and natural channel. Prince Maurice of Nassau preserved his eyes by this practice to a great age, after being in danger of losing them at thirty years old; and Sir Wm. Temple followed the same plan, with equal success.—*Essay on Health and Long Life. Code of Health,* 2d edit. vol. iv. p. 359.

The uses of this drug as a medicine, which are both numerous and important, ought always to be regulated by the directions of a medical adviser. Opium is certainly the most sovereign remedy in the Materia Medica, for easing pain, and procuring sleep; but, like other powerful medicines, it becomes, when improperly administered, highly noxious to the human constitution, and even productive of death [†].

3. *Dram-drinking.*

The subject of spirituous liquors has already been discussed, (see Part I. Chap. II.) It is proposed, at present, merely to allude to the unwholesome custom of taking what is called "a dram," or a glass of spirits undiluted. It is impossible to conceive any habit more truly pernicious than a system of dram-drinking, particularly in the morning [‡]. When poured unmixed into an empty stomach, a dram may be well called *liquid fire* [§]. It should never be taken in the intervals between meals, unless accompanied by a considerable quantity of bread, or other solid food; and only occasionally, in moist and cold weather. At sea, in high latitudes, or in an elevated and damp climate, ardent spirits may be of some use under proper regulations.

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[*] Dr Waterhouse's Lectures on Health, *Code of Health*, vol. iv. p. 553. See also the "*Confessions of an English Opium Eater*," where there is a highly coloured, but, it is to be feared, too true a picture of the miserable slavery which is the doom of those who addict themselves to this vice.

[†] See Dr Thorton's Philosophy of Medicine, vol. iv. p. 103. The Doctor adds, that by the indiscriminate use of that preparation of opium, called Godfrey's Cordial, many children are early cut off.

[‡] This subject is very ably explained by Dr Rush, in a paper entitled, "An "Inquiry into the Effects of Spirituous Liquors on the Human Body, and their "Influence upon the Happiness of Society," printed in his Medical Inquiries, vol. ii. p. 57. On the other hand, Burke has made an ingenious defence of gin, in his tract on distillation.

[§] It is shocking to think how many dram shops in London are supported by women. The men have certainly their share of blame, but in general they repent sooner, and are obliged to go to work again.

In winding up this chapter, we may observe, that the preservation of health depends much on *our daily habits;* for it is not what we do occasionally, but what we do every day, that can injure us essentially. The customs and habits therefore, which we adopt, are of infinite importance; they must either do us great good or much harm, by establishing health on the one hand, or fixing disease on the other *.

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* Cadogan's Dissertation on the Gout, p. 97.

Customs and *habits* mean the usages which individuals adopt in regard to their mode of living, diet, clothing, exercise, sleep, and other particulars connected with the regulation of their conduct. Though there is a distinction between the two, yet they could not well be separated in the preceding discussion. *Customs* are usages which require more or less the exercise of the will; whereas a *habit* is the result of a custom so long continued, that it is persevered in without reflexion. We may *accustom* ourselves, for instance, to rise early, till we at last become *habituated* to the practice. As Shakespear has happily expressed it,

> "How use doth breed a habit in a man."

A habit, it has been observed, is rarely formed in youth, though certain customs then begin, which lead to it: in middle age habits gain ground, and in old age they govern with almost despotic authority. In that period of life, generally speaking, we rise, eat, take exercise, and go to rest at certain hours; nay, a particular seat, table, bed, &c. it has been observed, come to be essential to our comfort, and a habit contracted in regard to any of these particulars, cannot be resisted without uneasiness.

CHAP. V.

OF BATHING.

Among the ancients, bathing was a daily practice, and was as common, especially among the higher and middle ranks, as eating or sleeping; whereas, by us, it is generally considered as a part of physic. Bathing, as Lord Bacon has justly observed, may be so used, as to become a great help to health, and to the prolongation of life *.

This extensive subject, which has been discussed in so many volumes, shall, on the present occasion, be briefly considered under the following heads: I. The general objects and uses of bathing; II. Of cold; III. Of warm; IV. Of vapour; V. Of shower; VI. Of partial; VII. Of air; VIII. Of earth or sand; IX. Of public baths; X. Of some modern improvements in bathing; and, XI. On bathing, as connected with the different stages of life.

Sect. I.—*The general Objects and Uses of Bathing.*

The objects of bathing are, 1. Cleanliness; 2. To remove fatigue; 3. To augment physical strength; 4. To prevent diseases; 5. To cure them; 6. To counteract contagion; 7. To relieve bodily pain; and, 8. To assuage mental distress.

1. *Cleanliness.*—This is so essential to health, and contributes so much to the beauty and perfection of the human frame, as to be accounted half a virtue †. The inhabitants of this country however, though so much distinguished for

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* Bacon's Works, vol. iii. p. 150. Also Code of Health, second edition, vol. iv. p. 300. Laurent Joubert, a celebrated French physician, proves, that many illustrious Romans, were in the habit of bathing themselves, particularly in summer, four, five, six, seven, and sometimes eight times a day.—*Marcand de l' Usages des Bains*, p. 16.—Nor is constant bathing confined to civilized nations. In the island of Otaheite, both sexes bathe frequently, and never eat without washing before and after. The negroes in general, particularly those of Ardrah on the slave coast, wash themselves morning and evening.—*Kames's Hist. of Man*, vol. i. p. 231.

† The Spectator, No. 631.

the general neatness of their domestic economy, and the cleanliness of their apparel, are too apt to neglect the use of the bath. Those parts of the body which are exposed to view, are carefully and regularly washed; but the same attention is not always paid to the parts which are usually clothed. By this neglect, the matter thrown out by perspiration is permitted to accumulate on the skin, giving rise to a variety of cutaneous diseases, which, by simple ablution, with either cold or warm water, might be prevented [*].

2. *To remove Fatigue.*—Hot baths were originally employed, for the purpose of recruiting the body when exhausted by fatigue. Those who had been engaged in violent exercises, as was the case in some of the favourite amusements of the Greeks, found their exhausted strength renewed, and their depressed spirits elevated, by immersion in the warm bath. Nothing can be more soothing and grateful to the body after it has been exhausted, than going into a bath of from 90° to 96° of Fahrenheit [†]. The Abyssinian traveller (Bruce) remarks, that in the intense heats of that country, a tepid bath afforded more refreshment and vigour than a cold one.

3. *To augment Strength.*—The ancients were of opinion, that warm bathing increased their physical powers; hence hot baths were consecrated to Hercules [‡]; and all those who accustom themselves to the bath, are well aware how much cold bathing in particular contributes to strengthen the body.

4. *Preventing Diseases.*—In man, as well as in other animals, a soft and clean skin is the criterion of health; whilst unnatural dryness of the skin is one of the first and surest signs of approaching disease. It is not therefore to be wondered at, that to improve the state of the skin, either by the warm or the cold bath, should be found an effectual mode of preventing numerous complaints [§]. A warm bath is useful by opening the pores; while a cold bath removes that morbid sensibility to air and weather, which is the source of so many disorders.

5. *To cure Diseases.*—Some general remarks will be made

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[*] Buchan on Sea-Bathing, p. 195. Since the universal use of linen or cotton next the skin, bathing has become much less necessary with a view to cleanliness.

[†] Ibid. p. 187.

[‡] Marcand de l'Usages des Bains, p. 23.

[§] Hufeland on the Art of prolonging Life, vol. ii. p. 233; and Taylor's Remarks on Sea-Water, p. 14.

in the sequel, on the disorders which may be alleviated, by using the various sorts of baths. But it may be proper here to observe, that bathing requires much caution in its application as a remedy for disease. It produces beneficial effects in many complaints, yet there is scarcely one complaint, in which it may not, if improperly used, prove prejudicial *. One great advantage however of bathing is, that if it do not cure disease, it frequently assists the operation of the medicines given, and thus indirectly contributes to the beneficial result †.

6. *Counteracts Contagion.*—Bathing is not only attended with success in several disorders arising from contagion ‡, but there is every reason to believe, that it is the best mode of preventing infection §. Mr Este states, " that he has been perhaps more exposed to contagious diseases than most people; but that hitherto he has escaped; and he considers himself principally indebted to the use of baths, for a large portion of the health which he at present enjoys ||." Struve also maintains, that bathing is a good defence against contagious poisons ¶. The use of the warm bath has long been common among the French inhabitants of the West India islands, and their exemption from some of the diseases which are so fatal to the British in those climates, is probably, in a great measure, to be attributed to the frequent custom of warm-bathing **. Perhaps if so useful a practice were universally adopted in the West Indies, and in America, the ravages of the yellow fever might be in some degree prevented. Beneficial effects might likewise result from its use in our naval and military services in the East Indies.

7. *To relieve bodily Pain.*—This advantage from the use of the warm bath, is fortunately experienced in various disorders, as the stone, the colic, &c.; and it has this additional circumstance in its favour, that it may be resorted to as a remedy, with perfect safety.

8. *To assuage Mental Distress.*—Bathing refreshes the mind, invigorates the system, checks irritation, promotes sleep, and

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* Wainewright's Mechanical Account of the Non-naturals, p. 151.

† Essay on Hot and Cold Bathing, by John King, p. 140.

‡ See Este's Cursory Remarks on Contagious Disorders, p. 2.

§ In an able paper, " On New and Additional Means for the Prevention and Eradication of Contagion," circulated by Dr Rollo of Woolwich, an. 1805, it is recommended, " that individuals not yet affected, should use the warm baths, and adhere to a rigid system of cleanliness."

|| See Este's Cursory Remarks on Contagious Disorders, p. 23.

¶ Asthenology, p. 361.

** Buchan on Sea-Bathing, p. 207.

spreads over the whole frame a sensation of ease, activity, and pleasantness. Indeed, a person distressed in mind, will derive more refreshment from the use of a warm bath, and may drown his disquietude in it more effectually, than by indulging in copious libations to Bacchus *; for,

> "Even from the body's purity—the mind
> Receives a secret sympathetic aid." THOMSON.

On the whole, bathing has been found so highly beneficial, and indeed is so necessary in some climates, that its practice, at stated times, has been prescribed by legislators and the founders of several religious systems, as a sacred ceremony, which cannot be too rigorously observed †.

SECT. II.—*Of Cold Bathing.*

THIS branch of the subject may be considered under the following general heads: 1. House; 2. River; and, 3. Sea baths.

1. *House Baths* ‡.—It is unfortunate that few houses have the proper conveniences for bathing. But though in private houses, baths are not always properly constructed, or kept in good order, yet in several towns and watering places, they are in every respect unexceptionable; and the benefits of cold bathing may be enjoyed to great perfection within doors, by those who are prevented from bathing without, by tempestuous weather, or to whom the sea is an object of apprehension §. The temperature of the air, and of the water, may be uniformly kept up nearly at the same degree. A little time may be, with advantage, allowed to elapse, before going into the open air, till the glow of heat, indicating the good effects of bathing, begins to diffuse itself over the surface ‖.

Besides large baths, tubs of water are sometimes used for domestic bathing [*]; and these might be greatly improved by the addition of salt, giving to inland districts, some of the advantages of sea-water baths [†]. Struve is of opinion, that in summer, river water ought to be employed in preference to any other; but, if there be none in the neighbourhood, spring water should be suffered to stand all day exposed to the sun, that it may acquire a more animating quality, by the caloric and oxygen which it thus imbibes. To this may be added, when used by the aged or delicate, a small quantity of warm water [‡]. In winter, the patient ought to bathe in a warm apartment. A sufficiently large tub should be employed, otherwise the body, being only partially covered, whilst a part is warmed, the uncovered part will be exposed to cold [§].

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* Willich's Lectures on Diet and Regimen, p. 82, 96.

† A Treatise on Cold and Warm Bathing, printed at Edinburgh, an. 1807.

‡ A singular mode of applying cold water within doors, was practised by the Earl of Panmure, who died in January 1782, aged 82. He was accustomed, till a short while before he died, every morning previous to dressing, to raise himself naked from his warm bed, and instantaneously to wrap himself in a sheet just dipped in cold water. It is well authenticated, that by adopting the same method, a person recovered strength from a long-continued state of debility, and relaxation of constitution.—*Dr Molleson's Remarks on Longevity.*—See Code of Health, second edition, vol. ii. Appendix, p. 48.

§ Buchan on Sea-Bathing, p. 94.

‖ Treatise on Cold and Warm Bathing, p. 21.

Some delicate people have derived advantage, from daily washing the surface of the body with a sponge, dipped into sea-water, or salt and water of a proper strength. Dr Buchan considers it as a better plan, to rub the skin till it glows, with a coarse towel, wrung out of salt water, and rendered nearly, but not quite dry, by exposure to the rays of the sun [||].

2. *River Baths.*—River-bathing has its advantages, from the water containing caloric, and its continual motion. It is not however, to be much recommended to the debilitated, unless in the height of summer. The bath ought to be taken either before dinner, or before an early supper. But the patient, if delicate, should only remain in the river for a few minutes [¶].

River baths, and bathing in lakes, or large pieces of water, are so very useful to the inhabitants of inland districts, in respect both of health and cleanliness, that they ought not to be neglected.

3. *Salt-water Baths.*—In treating of this subject, it is ne-

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[*] In the Roman baths, there were two kinds of bathing tubs; one fixed, and the other moveable. Of the latter, some were contrived on purpose to be suspended in the air; by means of which, to the good effects of bathing, was added the pleasure of being rocked in the bathing tub.

[†] It is a useful practice, to add a certain quantity of salt to the water in which a patient is to bathe at home. The water and salt should be renewed every second or third day. *Essay on Indigestion*, p. 21.—The proper proportion is, one pound of common sea salt, to thirty-two English pints of water. A solution is thus made, which answers nearly all the purposes of sea-water.

[‡] Struve's Asthenology, p. 362.

[§] Ibid.

[||] Buchan on Sea-Bathing, p. 94.

[¶] Struve's Asthenology, p. 361.

cessary to consider, 1. The nature of a salt-water bath; 2. The rules to be observed regarding sea-bathing; 3. The uses of bathing machines; 4. Of bathing dresses; 5. Of swimming; and, 6. The advantages of sea-bathing in general, together with the objections to it.

1.

Bathing in the sea, is greatly preferable to bathing in fresh water. It excites the action of the solids; stimulates the vessels of the skin; causes an increased determination of the fluids to the surface of the body, and promotes all the secretions. Even persons of the most delicate habits are less susceptible of cold, from being wet with salt, than with fresh water *.

Bathing in the sea, by exposing the body for a time to a medium of lower temperature than it has been accustomed to, combined as it commonly is at watering places, with the opportunity of breathing pure air, of enjoying moderate exercise, and indulging in agreeable society, and innocent amusements, strengthens the constitution, and invigorates the mind. Indeed in many cases, after even a short course of judiciously regulated sea-bathing, it is difficult to recognise the languid invalid, who a few weeks before had repaired to the sea-coast in a state of great debility.

2.

The rules which have been recommended with reference to sea-bathing are so numerous, and often so contradictory, that it is difficult to select or arrange them with propriety; but the following, digested from a variety of publications upon this subject, appear to be entitled to the reader's attention.

Rules for Sea-bathing.

(1). Sea-bathing should be continued for at least five or six weeks, at two periods in the year, making June a part of the one period, and September of the other. By thus allowing an interval between the two courses of bathing, a more salutary change may be effected in the fluids and solids, than if it had been persisted in for many months without intermission †.

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* Buchan on Sea-Bathing, p. 42.

† Bathing in the heats of the dog days is not reckoned so useful. The lowest temperature of the sea on our coasts, is about 40° of Fahrenheit; whereas

(2). *The young and delicate* ought gradually to prepare themselves for sea-bathing, by previously using *the tepid bath,* at a temperature commencing at 90°, lowered five degrees each time, and terminating at 65°.

(3). Bathing ought not to be commenced until two or three days after arriving on the sea-coast; during which, it may be advisable to take a moderate dose of salts, or a tea-cupful of sea-water, every morning before breakfast. Sea-bathing is attended with risk after great fatigue, as on coming from a long journey; and after the body has been long engaged in any exertion, which has produced lassitude, debility, or chilliness; and when there is any marked determination of blood to the head or lungs. It is an indispensable rule, never to bathe after having taken medicine, or while under its influence, or with a full stomach.

(4). The robust and healthy may bathe early in the morning before breakfast; but persons of a delicate or feeble constitution, or who are in the habit of dining late, and indulging in the luxuries of the table, ought rather to bathe about two hours before dinner. It is better for such persons, to bathe on alternate days, than for many days consecutively. Daily bathing frequently produces lassitude, accompanied by a manifest wasting of the body *.

(5). It is now a rule in bathing, to avoid going into the water when the body is cold, so that even infirm persons should not use the cold bath, without having previously taken some moderate exercise. This doctrine cannot be too strongly inculcated. Dr Currie justly observes, that bathers ought not to wait on the edge of a bath, or of the sea, until they are perfectly cool; for if they plunge into the water in that state, a sudden and alarming chilliness may supervene, which would not have been felt, had they been moderately warm when they went into the water.

(6). Attention should be paid to the nature of the bathing place. A bottom of clear sand is to be preferred. Sea weeds are to be avoided; for they frequently contain pointed shells, which are apt to inflict dangerous wounds.

(7). It has long been considered a useful rule, to have the head first wetted, and indeed many think it necessary to

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in autumn, it is often from 60° to 62°; and as the atmosphere is probably about 65°, it may be called temperate, rather than cold bathing. The lower the temperature we can accustom ourselves to bear with impunity, the better we are enabled to withstand the vicissitudes of the seasons.

* This last circumstance should induce the corpulent to try the plan of daily bathing.

plunge head foremost into the water. It is asserted, that a rush of blood to the head, with all its direful consequences, may take place, if this precaution be neglected. This practice however, has of late been objected to. A sudden plunge is a violent and unnatural exertion, which ought not to be insisted upon *with delicate people;* and several of the bad effects which are ascribed to cold bathing, and which have forced many who were anxious to persevere in its use, to abandon it, are supposed to have originated from the effects of this very practice. Plunging headlong into the water, with most people, occasions unpleasant sensations, affecting both the eyes and the ears; and no one should do so, who suffers inconvenience from it *. Those however, who feel no bad effects from the practice, may persevere in it.

(8). The time spent in the water, should not exceed a minute or two. If longer immersed, the body should be kept during the whole time under the surface of the water, and in action, in order to promote the circulation of the blood. It is much better to remain completely immersed in deep, than to take repeated plunges in shallow water.

(9). Upon coming out of the water, the body should be wiped dry, with a rough cloth, and the ordinary dress quickly resumed. It is more necessary to replace the usual vestments quickly, than to be extremely anxious to have the surface of the body perfectly dry, as wetness from salt water is not likely to be prejudicial.

(10). After bathing, moderate exercise is necessary to promote the return of the heat of the body, care being taken that it is not violent, nor too long continued.

(11). If bathing occasion chilliness, a meal should be taken soon after the bath; breakfast in the morning, in the forenoon, some warm soup. Indeed if immersion, instead of being succeeded by a glow on the surface of the skin, be followed by chilliness, languor, or headach, bathing should by no means be persisted in.

(12). During a course of sea-bathing, and when even the warm sea-water bath is used, friction with a flesh-brush, or coarse woollen gloves, ought not to be omitted. It may enable a patient to continue the course, when otherwise he must have given it up.

3.

Bathing-machines are exceedingly useful, and ought to be established at every bathing station. When properly managed, and in good repair, they afford a means of bathing in almost all weathers. They preserve the clothes, and save the bather from injurious exposure to cold winds while undressed.

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* Treatise on Warm and Cold Bathing, p. 18. Stuffing the ears with cotton or wool, is a useful precaution.

4.

Bathing-dresses should be made of a very open texture, so as freely to admit water. They prevent the temperature of the body from being so much reduced, as to render bathing in cold weather hazardous. To strong and healthy men, bathing dresses are not necessary; but to sickly males, such dresses may prove useful. At any rate, until completely undressed the body should be wrapt in a large dry flannel gown, which should not be laid aside till the very moment of going into the water; by this means, any chill previous to immersion will be avoided, and that salutary glow, which ought always to succeed bathing, will in general be insured *.

5.

The exercise of swimming is healthy and agreeable; it induces comfortable sleep, even during the most ardent heat of summer. Perhaps the pores being cleansed, the insensible perspiration increases, and thence may result the refreshing coolness experienced †. Those therefore, who have acquired the art of swimming, should continue to practise it, while they remain in the water; for, besides the uninterrupted immersion of the body, the muscular exertion required in swimming, tends greatly to keep up the balance of temperature, which is lost if the body be surrounded with a medium which is a powerful conductor of heat ‡.

It should be an invariable rule however, even with the most expert swimmer, never to bathe in the sea, in a lake, or a river, without having a boat near him, or taking another person with him who knows how to swim. It is an exercise which soon occasions fatigue and weakness; and persevering in it too long frequently proves fatal.

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* Buchan on Sea-Bathing, p. 65. It is better not to wear an oil-skin cap; if worn, the ears should not be covered, though they may be stuffed with cotton or wool. Indeed since the custom of wearing powder and pomatum has been abandoned, caps are not so necessary.

† Cursory Remarks on Contagious Diseases, and on Baths; Part II. p. 17. It is certain that much swimming has stopped a diarrhœa, and has even produced constipation; Ibid.

‡ Treatise on the Beneficial Effects of Cold and Warm Bathing, p. 17.

6.

The curing of disorders by the use of the cold bath, is a subject of inquiry, which properly belongs to the medical profession; yet we may observe, generally, that sea-bathing is considered to be more applicable to chronic, than to acute disorders; and that it is most likely to be of service, in complaints originating from a diminished energy in the vital functions, and attended by symptoms of languor and debility *. The effects of sea-bathing may be equally beneficial, whether the reduced state of the system be owing to constitutional delicacy increased by effeminate modes of living, or the result of injury to the constitution, either from exposure to insalubrious climates, by habitual indulgence in too stimulating a diet, or by excess in bodily, or in mental exertion. In all cases of doubt or difficulty however, recourse should be had to an experienced medical practitioner, whose opinion may be much more safely relied on, than the interested advice of owners of baths, and of bathing machines, or their puffers; for it cannot be expected, that those whose profits depend on the number of their employers, should have the candour to tell any one of them, that bathing can be of no use to him †.

On this subject Dr Buchan has well observed, that before people fly to a fashionable watering-place, for the purpose of sea-bathing, they should ascertain, from the best advice they can obtain, whether they are likely to be benefited by it; otherwise, they may waste their time and money, to very little purpose.

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* Cold bathing is said to be useful in the following complaints: 1. Continued fever; 2. Intermittent fevers; 3. Nervous diseases; 4. Palpitation of the heart; 5. Hypochondriasis; 6. Hysterical and other female affections; 7. Nervous headach; 8. Rheumatism; 9. Bilious complaints; 10. Sore throat; 11. Inflammation in the Eyes; 12. Scrofula; 13. Rickets; and, 14. Sterility from debility of constitution. *Treatise on Cold and Warm Bathing*, p. 22.—A great proportion of the disorders in modern times originates in relaxation, the result of too luxurious, or of too low a regimen; in either case, cold bathing is of general application and utility. *Remarks by Dr Molleson, Code of Health*, 2d edit. vol. ii p. 46. Dr Hamilton considers cold bathing highly useful in habitual constipation.

† The following tracts will furnish those who wish to study the subject of bathing, with much useful information: 1. Practical Observations concerning Sea-Bathing, with Remarks on the use of the Warm Bath, by A. P. Buchan, M. D.; 2d edit. Printed in London; 2. Treatise on the Beneficial Effects of Cold and Warm Bathing, Edinburgh 1807; 3. Remarks on Sea Water, by Charles Taylor, M. D.; London, 1805; 4. Cursory Remarks on Contagious Diseases, and on Baths, by M. L. Este, Esq. part 2.; London, 1811. It were much to be wished, that from these and other works in which bathing is discussed, as Marcand, &c. a complete treatise, including every branch of so interesting a subject, were drawn up.

SECT. III. *The Warm Bath.*

THE Warm Bath may be considered as one of the most powerful restoratives with which we are acquainted. Instead of heating the body, as most people imagine, it has a cooling effect. It diminishes, under a proper system, the quickness of the pulse. It is of eminent service when the body is overheated, either after fatigue from travelling, or severe bodily exercise; or after violent exertion and perturbation of mind. Warm baths are very beneficial even to the young; their advantage to the old cannot be doubted *.

In discussing this subject, it is proposed to consider, 1. Natural Hot Baths; 2. Artificial; 3. The Rules regarding the Artificial; 4. The effects of violent Hot Baths; 5. Of Cleansing; 6. Of Medicated; 7. Of Nutritive; 8. Of Tepid Swimming Baths; 9. The advantage of alternate Hot and Cold Bathing; and, 10. Of other fluids used in warm bathing besides water.

1. Hot Mineral Baths, such as those of Bath, being impregnated with saline, sulphurous, and chalybeate substances are considered by many to be more powerful in curing diseases than the artificial, which never can be so thoroughly combined with these substances †. They are so extremely powerful however, that they ought to be resorted to, only in cases of necessity, as in old age, when the circulation of the blood is tardy; and even artificial chalybeate baths, require a very nice and accurate administration, and are by no means to be lightly taken.

Those at Bath are, in fact, the only natural hot baths we possess, the other British warm baths being much below the animal temperature. Cheltenham is but from 53° to 55°; Matlock 66°; Bristol Hotwells 74°; and Buxton 82° ‡.

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* Willich on Diet and Regimen, p. 233. It has been ingeniously remarked, that after the hot bath, the air braces even in warm weather.

† Lynch on Health, p. 474. The Pfeffer Bath on the Alps, is one of the most celebrated in Europe, though almost inaccessible. It was discovered anno 1240, and is of the periodical kind, breaking out in May, and ceasing in September or October. Several treatises have been written expressly on the subject of this bath. It is of the temperature of human blood, and is said to be the purest and lightest water that exists. Many persons are so fond of it, that they pass almost the whole day in the bath; even the physicians who have most recently written regarding this bath, state, that during a residence of from four to six weeks, it is not too much to spend *six hours per day* in the water.—*Marcand de l' Usage des Bains*, p. 41, 42.

‡ Este's Cursory Remarks on Contagious Diseases, and Baths, p. 28.

All the springs at Bath are not of the same temperature; the Public Cross Bath is from 92° to 94° of Fahrenheit; the King's Bath about 106°; and what is called the Hot Bath, about 116°. Some of the foreign mineral baths however, are much hotter than this; the hottest at Aix-la-Chapelle is 143°; at Barege 120°; in its neighbourhood 135°; and at Carlsbad, in Bohemia; and the Caroline Baths are as high as 160°.

2. Artificial Hot Baths are made either of fresh, of salt, or of mineral water. Some think that the difference between them and natural hot baths, is not material. Dr Beddoes says expressly, 'Unless you disregard the expense, and 'find pleasure in a new scene, prepare your tepid, your sa-'line, and other baths at home. As baths they will answer 'the purpose as well as any other [*].'

The point of chief importance in Artificial Hot Baths, is the temperature; for, though very strong and healthy persons may permit themselves some latitude in that respect, and although particular diseases may require a higher temperature, (which it belongs to an intelligent and experienced physician to determine), yet for common and dietetic uses, the greatest benefit is derived from baths, about the standard heat of the human body; that is to say, not under 90°, nor above 98° of Fahrenheit. When they exceed this they may prove too stimulating. It is at a temperature of from 90° to 97°, that the soothing and refreshing effects of the warm bath are chiefly to be expected; and at this degree of heat, it may in general be used with safety and advantage.

In ascertaining the heat of a bath, the skin is not to be trusted to; a trial by the thermometer is the only test that can be depended on. The neglect of this precaution has sometimes occasioned serious accidents [†].

3. The following are the rules recommended in regard to warm bathing.

(1.) An hour or two before dinner, when the stomach is empty [‡], is the most proper time to use the warm bath for common purposes. If that bath be used in the evening, it is apt to accelerate the circulation, and thus to produce feverishness and restlessness during the night. (2.) The time of remaining in the bath should be in general about half an hour, and should never be so long as to produce languor, at the time, or afterwards. (3.) The bather should rub himself well with his hands, or a flesh-brush, during his continuance in the bath. (4.) On coming out of the bath, the body must be wiped perfectly dry, previously to the usual dress being resumed. (5.) After a bath, no additional covering is required, and there need be no apprehension of catching cold; overheating however, which may occasion chillness afterwards, ought to be avoided.

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[*] Manual of Health.

[†] Dr Taylor's Remarks on Sea-water, p. 5, &c.

[‡] The rule in ancient times, was quite different.

With these precautions, the warm bath will be found to augment the natural vigour and strength, to facilitate digestion, to alleviate the sense of fatigue, and to be followed by sound and refreshing repose *. By warm bathing, rheumatisms, catarrhs, and other disorders, arising from want of perspiration, may be prevented, or cured.

Very considerable improvements have been made in the science of warm bathing, in consequence of the experiments of Count Rumford, an account of which he has published. He ascertained, that a person may gain fresh health, activity, and spirits, by bathing every day at two o'clock in the afternoon, at the temperature of 96° or 97° of Fahrenheit; and remaining in the bath half an hour. He continued that plan for thirty-five days, and derived from it permanent advantage. He also proved, that the idea of going to bed after a warm bath, in order to prevent colds is erroneous; that no alteration should be made in the clothing, and that the body, on exposure to the air, is not more susceptible of cold, than it was before going into the bath †.

When the warm bath is employed to produce sensible perspiration, the patient should go into it at the temperature of 94° or 95°, gradually increasing it to 97° or 98°; or, if profuse sweating be required, it may be raised to 99° or 100°, provided the pulse be not alarmingly quickened. When the perspiration breaks out on the face, the patient is to be dried and removed to bed; there the sweating may be encouraged while it is necessary. Bathing in that tempera-

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* See Plutarch's Rules. Code of Health, 2d edit. vol. ii. p. 108; and Buchan on Sea-Bathing, p. 207.

† See the Count's Observations concerning the salubrity of Warm Bathing, Essay 13, vol. iii. p. 421. Count Rumford justly reprobates the idea of any advantage being derived from temperate baths of from 55° to 60°. The average rate of animal temperature is 98°; in these temperate baths, therefore, we lie motionless in a temperature very much colder than our bodies, and consequently run a risk of being dangerously chilled. Count Rumford has formed plans of baths, well worthy the attention of those who are interested in such constructions.

ture is found of use in lumbago, or violent pains in the loins, and in irregular gout.

4. It is proper here to observe, that though at present it is a rule not to bathe with a full stomach, yet that in ancient times many suffered, because they could not endure to eat before they bathed. Among these, it is said that the celebrated Emperor Titus was one *. The temperature of the Roman baths, however, was so high that food in the stomach may have been necessary to sustain the stimulus of so much heat. At one period of the Roman Republic, it was the duty of the Ædiles, to see that the heat of the public baths was properly regulated, before the people were admitted to them; but this salutary precaution came afterwards to be neglected. It is not then to be wondered at, that debility and disease should have been the consequence of exposing the body to the action of heat, in a medium much higher than its own temperature †.

5. In the tepid bath, the ancients, for the sake of cleanliness, were accustomed to rub the surface of their bodies with mallow leaves, or with the dry flower of a species of chick pea, called *cicer*. Common bran, or what is called almond meal, will answer the same purpose, that of rendering the skin soft and pliant. The natives of India use a species of nut for this purpose, *(the soap-nut)*, which very effectually cleans the skin, and when it follows oil, leaves it in a soft and pleasant condition.

6. Many attempts have been made to improve the medicinal quality of baths, by adding to them various ingredients, as leaves of plants, medicinal decoctions, &c. This has proved a fertile field for quackery. At the same time, it is the opinion of an intelligent physician, that domestic baths, for the use of the aged and the debilitated, may be rendered more efficacious, by the addition of strengthening herbs and roots, and in particular of barks; or the flowers of lavender or chamomile ‡.

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* Plutarch's Rules for the Preservation of Health. Code of Health, vol. ii. p. 108.

† Marcand de l'Usage des Bains, p. 213. Also Treatise on Cold and Warm Bathing, p. 40. Among the complaints in which warm bathing is useful, the following are in general enumerated: 1. Hectic fever; 2. Chronic weakness; 3. Spasmodic cough; 4. Convulsions from eruptive diseases; 5. Colic pain; 6. Promoting the passage of stones in a fit of the gravel; 7. Rheumatism; 8. Fistulous ulcerations; 9. Obstructions, particularly the stoppage of gall-stones in the gall-bladder; and, 10. Swellings of the extremities.

‡ Asthenology, or the Art of preserving Feeble Life, by Struve, translated by Johnston. Printed anno 1801.

7. Baths have also been recommended as a means of nourishing the body. A very general opinion once prevailed, that during the immersion of the body in warm water, part of the fluid was absorbed by the pores of the skin ; and it was concluded, that by impregnating baths with substances of a nutritive quality, life might be supported, when the stomach, from disease, could not admit or digest the necessary food. It is believed however, that no such absorption or inhalation, *at least for the purposes of nutrition*, can take place by the skin, while the external cuticle remains unimpaired [*]. It has however been found, that to wet the clothes, and allow them to dry on the body, in some degree allays the agony of thirst, in those exposed at sea to the total deprivation of fresh water.

8. In addition to their other baths, the ancients had the *calida natatio*, or the tepid swimming baths, which might be established in this country for pleasure, if not for health. The proper temperature would be about seventy degrees, as the exercise taken renders greater warmth unnecessary [†].

9. Alternations of heat or cold, produced either by successive immersions in baths of different temperatures, or by the affusion of cold water upon a body, which had just emerged from the hot bath, *(calida lavatio)*, was one of the practices in most common use among the ancients. Hippocrates, when speaking of regimen in diseases, and even in acute disorders, adverts to the precautions which the affusion of cold water, in coming out of the bath demands, according to the different kinds of affections under treatment, and Galen treats of the same subject [‡]. The Russians and Finlanders, of the present time immerse their bodies in cold water after their vapour baths ; and the Russians even roll themselves in snow after coming out of the warm bath. This alternation from hot to cold, must both harden and strengthen the body, and, above all, render it independent of the vicissitudes of climate.

The system of alternate bathing, is also strongly recommended by Celsus [*]. It is by some supposed, that it would prove serviceable in disease, particularly in infantile complaints; and that it might afford relief in cases of weakness.

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[*] Treatise on Cold and Warm Bathing, p. 37.

[†] Mr Este strongly recommends this plan to a society of gentlemen who meet in London to seek amusement upon the water. Mr Goodlet of Leith lately erected a plunge bath, which unfortunately has been destroyed by fire. It was filled from the sea, and kept at a temperature of 10 degrees higher than the open sea. Mr Goodlet's baths, by their excellent arrangements, cheapness, and vicinity to Edinburgh, proved a great comfort to the northern capital ; and it is to be hoped, that this enterprising individual will re-establish them.

[‡] Hygiene, by Halle, Code of Health, vol. iii. p. 296.

10. Besides hot water, the ancients employed milk, whey, oil, and wine in a warm state; and by some modern authors, the practice has, in particular cases, been strongly recommended [†].

SECT. IV.—*Vapour Baths.*

IN a vapour bath, the patient is not plunged into a quantity of liquid, but only receives its steam, either upon the whole, or on some part of the body which requires it. At Baiae, there are some natural baths of this description.

The most celebrated vapour baths of modern times, are those of Grand Cairo, the effects of which are thus described by Savary, in his letters on Egypt: " After reposing in vapour for some time, a gentle moisture diffuses itself over the whole body. The skin is completely purified by various processes; in consequence of which, the blood circulates freely, the body feels a voluptuous ease till then unknown; and the bather almost fancies himself new born, and just beginning to live. Such are the baths which the Egyptians still enjoy; and there they either prevent or exterminate rheumatism, catarrhs, and those diseases of the skin, which the want of perspiration may occasion. These warm baths give to the coarsest skin a softness and pliancy, and preserve in it an elasticity, and a delicate whiteness, which no other known expedient can impart to it."

Vapour baths were much used by the ancient inhabitants of Mexico, as they still are by their descendants. The vapour is obtained by throwing water on heated stones, in a kind of furnace or close apartment, in which the person who uses the bath stretches himself on a mat *. The Indians in North America, when affected with rheumatism, choose a situation on the bank of a river, where they erect vapour baths, and remain in them till all pain is gone, when they immediately plunge into the river.

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[*] See Code of Health, 2d edit. vol. ii. p. 82. Celsus recommends to use sometimes the warm bath, and sometimes the cold.

[†] Marcand de l'Usage des Bains, p. 4, 146, and 147. Other sorts of baths might here be mentioned, as Balnea Sanguinolenta, see Bacon in his Work on Life and Death; (Code of Health, vol. iv. p. 212, 213); and metalline baths, prepared from the scoriæ of iron. Some artificial baths are also prepared with alum and quicklime, boiled together in fine rain water. They are supposed to be highly serviceable in paralytic disorders, and weakness of the limbs. It is only necessary however, merely to allude to these sorts of baths, in a short discussion of so extensive a subject as that of bathing.

In Russia and Finland, the vapour bath is used, heated to the temperature of 160° Fahrenheit, and sometimes even higher. In this bath, and at this temperature, the peasants generally remain for half an hour, and sometimes for a whole hour; and, even in the winter season, they will go out of the bath quite naked, and converse together for some time in the open air, without sustaining any injury whatever. They indeed assert, that without the hot vapour baths, they could not sustain, during the whole day, their various labours. By the bath, they tell you, their strength is as much recruited as by rest and sleep †.

The late Basil Cochrane of Portman-square, London, tried a number of experiments with the steam-bath, generally at the temperature of 120°, and with great success, in several cases of chronic rheumatism, of catarrhal fever, attended with hard cough and difficulty of breathing, of gout, of gravel, and ophthalmia ‡. By that bath, the bodies of some patients were cleared of an incredible quantity of impurities.

It has been ascertained by an intelligent physician, (Doctor Donald Monro), that the vapour bath will cure a consumption when it arises from defective perspiration. The skin, though dry, as parchment, by the application of steam, resumes its former softness, perspiration is re-established, and the patient is cured, even though a cough has taken place, and the expectoration is apparently purulent §.

An ingenious mode of employing steam, has been invented by Dr Blegborough, called the air-pump vapour bath, which is of use, it is said, in gout, rheumatism, palsy, and other diseases. In a work published upon that subject ‖, a question is put, whether it would not be desirable to have a machine constructed, which, instead of a partial application, would include the whole body, as far as the neck, in order that the

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* Clavigero, Hist. of Mexico, i. 429. In Virginia, vapour baths are established in almost every town. See King's Essay on Hot and Cold Bathing, p. 146.

† See Acerbi's Travels, vol. i. chap. xvi. p. 297, 299.

‡ Este's Cursory Remarks on Contagious Diseases, and Baths, p. 2.

§ Marcand de l'Usage des Bains, p. 176. This and every other mode of curing consumption, ought to be generally known.

‖ Facts and Observations respecting the Air-pump Vapour Bath, by Dr Blegborough, printed in one volume octavo, ann. 1803.

body might thus be involved in an artificial atmosphere. In the sequel we shall notice a spirit vapour bath, which seems capable of answering this purpose.

Many medicines in their state of vapour produce most satisfactory effects on our system; some indeed in that shape appear to possess curative powers, which do not belong to them in their more solid forms. Thus sulphur vapour is said to be capable of acting in a great many cutaneous affections, in which, whether administered by the mouth, or applied in the shape of ointments or lotions, this medicine has little or no effect. Dr De Carro appears to have carried the construction and application of vapour baths to great perfection in Vienna. And it would surely be well worthy of encouragement in every large town, to have an establishment of vapour baths, in which not only steam, but the vapour of alcohol, ether, mercury, sulphur, &c. might be resorted to *.

SECT. V.—*Shower Baths.*

THE shock occasioned by a shower bath, is much greater, and to most people, more unpleasant, than that of immersion into the sea. It has three advantages, which render it in several cases useful; 1. The application is sudden; 2. The head is first wetted, which prevents the blood being driven from the lower to the upper parts; and, 3. The bath is of short duration. It consequently, in many cases of debility, acts as a most powerful tonic. After being familiarized to the disagreeable shock which attends its use, valetudinarians who have no organic disease, and delicate females will, in general, find its daily use throughout the year, an effectual strengthener of the system. It may be gradually commenced; as for instance, by pouring a pitcher of water over the head, then a small quantity of water from the shower-bath, and the chill may, in the first instance, be taken off the water.

SECT. VI.—*Partial Baths.*

THERE is reason to believe, that by bathing the head in cold water, inveterate headachs, continual catarrhs, and defluxions from the palate and nostrils, may be prevented or cured. This system is not only sanctioned by modern but by ancient practice, and is well worth being tried by those who are afflicted with such disorders *.

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* Baths of this description were instituted in Edinburgh, by Wm. Scott, Esq. with great benefit to the city, and to the medical practitioners. They do not appear however, to have succeeded, which is a serious loss to the inhabitants.

Bathing the feet ought, if possible, to be a daily practice. Nothing indicates tenderness of frame more, than coldness in the feet; whereas warmth, and free perspiration there, are the signs of good health; for they prove a free state of the circulation, in the small vessels, at a distance from its source. The perspiration however, unless daily removed, is apt to become offensive. It is disputed, whether hot or cold water should be applied in bathing the feet. On the whole, warm or tepid water may be considered the best.

The warm bath has been already treated of as a remedy for fatigue. When a large bath cannot be obtained, a pediluvium or foot-bath ought to be made use of. It is found by experience, to communicate new spirits to the weary traveller, and almost instantly to remove the sensation of languor. A hip bath has been of late much used, for various complaints connected with local debility.

Among other partial baths, pumping water, or pouring it from a height, on particular parts of the body, for local complaints, is well worthy of attention. Hot water is sometimes applied in this manner with much success. When cold water is thus partially applied, the coldness may be increased by ice, nitre, or other artificial means.

The advantages to be derived from the application either of hot water, or its steam, for complaints in the eyes, has been already mentioned. Steam has likewise been successfully employed in alleviating the pain of the toothache and the ear-ache; and by inhalation, in catarrhal complaints in the lungs, &c.

SECT. VII.—*Air Baths.*

THE practice of applying heated air to the naked body, was much in use among the Romans. They prepared themselves for bathing, by exposing themselves to heated dry air in an antichamber to the bath. Thus hot air, was only considered as a preparation for hot water †; and so much heat seems to have been applied, as, had the infliction been compulsory, would have been considered a severe punishment, even for a slave *.

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* Dr Buchan, in his Treatise on Sea Bathing, p. 117, &c. gives some instances, from an old book, on Cold Water, of the utility of the above practice.

† Code of Health, 2d edition, vol. ii. p. 82. Marcand de l'Usage des Bains, p. 217.

The medicinal virtues of a *cold air* bath, have not yet been fully ascertained. The late Lord Monboddo tried its effects, and Dr Franklin was partial to what he called his *air-bath*, namely, exposing his naked body, for a certain time, to the temperature of the atmosphere. And we can recommend it as a safe and healthful custom, all the year round, to go through the morning ablution, shaving, dressing the hair, &c. in a state of nudity. There is less danger of catching cold when the whole body is naked, than when a part, generally clothed, is exposed, and the rest covered. The air-bath, accompanied by friction, is healthy and useful.

SECT. VIII.—*Earth and Sand Baths.*

SOME physicians, (as Arbuthnot and Struve), have recommended the application of earth, freshly dug up, as serviceable in lameness of the extremities. Care must be taken that the earth is perfectly dry, and without any noxious qualities.

A warm sand-bath, for enveloping the limbs, has been supposed to prove useful to patients having paralytic complaints. It is particularly recommended for weaknesses and deformities in the limbs; and it appears from Marcand, to have been an ancient practice.

SECT. IX.—*Public Baths.*

IT will appear from the preceding observations, that bathing is not to be considered merely as an idle and luxurious amusement, but as a practice so favourable to health, that it ought to be encouraged as much as possible. It has been proposed, that in some central village or town, in every district, there should be one or two houses, where people might be accommodated with cold and warm baths; and indeed, it has been suggested, that such a plan ought to be made a part of the general police in every country †. It is at all events very evident, that some means should be thought of, for establishing public baths in the metropolis, and in all large towns, on a scale corresponding to their population. The populace, as was the case at Rome, should be admitted to these baths, upon paying a moderate sum; and the hours at which admission should be granted, ought to be regulated by law. This is the more necessary in London, for example, as from its great extent, it is difficult for the lower orders to have sufficient exercise in pure air. There would be no difficulty in bringing salt water to London, from the coast of Sussex, for so important a purpose. According to Fabricius, there were eight hundred and fifty-six public baths at Rome, and some of them were large enough to contain, at one time, eighteen hundred persons *. The ruins of some of these splendid establishments, which exist at this day, excite the wonder and astonishment of every traveller.

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* Arbuthnot on Air, p. 208. Struve's Asthenology, p. 335, 336. Marcand de l'Usage des Bains, p. 5. Seneca's Epistle to Varro, p. 86.

† Catechism of Health, p. 48.

It was when these baths were in their glory, that Martial wrote these famous lines:

> Balnea, vina, Venus, corrumpunt corpora nostra;
> Sed vitam faciunt, balnea, vina, Venus †:

—evidently implying, that bathing formed one of the principal enjoyments of life in those luxurious times.

Sect. X.—*Some Modern Improvements in Baths.*

The late Dr Helenus Scott, a man of great intelligence and observation, introduced into medical practice an acidulous bath, which seemed in his hands, and that of some others, to prove very serviceable in many diseases. Unfortunately however, as is too often the case with discoverers of remedies, Dr Scott professed to cure almost every disease with his bath. It was soon found, of course, to possess no such miraculous virtue; disappointments frequently followed its use, and the ordinary consequence has ensued; it has fallen into undeserved neglect. In the Appendix will be found Dr Scott's account of his bath, in the shape of question and answer.

As it is extremely desirable to procure vapour-baths of a cheap construction, it may be proper to mention a plan suggested by Dr Cumming of Denbigh, which seems well calculated to attain this object. It may be made of any piece of cooperage, of sufficient dimensions,—a pipe cask will answer. Strong iron hoops are necessary, to make the machine steam tight, and to prevent it from undergoing any change of shape. The boiler is distant from the bath about six feet, and the steam pipe is made to enter an inch above the bottom, and to extend itself horizontally to its centre, with the view of equally diffusing the heat. A piece of coarse linen or calico, stretched upon a hoop, with a notch to admit the steam tube, is placed over it: This is called *a diffuser*, and is of a less diameter than the bottom of the bath, in order that a strong frame or grating, to support the bather, may rest upon the bottom of the bath. This sort of vapour-bath is said to be simple, cheap, durable, and efficient. The expense of heating it is so trifling, that several persons may bathe at the cost of one penny *. It is well calculated for hospitals, and public institutions; but for private families, a machine constructed on the same principles, in the form of a sedan chair, might answer the purpose equally well, and would be more convenient.

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* Este's Cursory Remarks on Contagious Diseases and Baths.

† Wine, women, baths, against our lives combine;
But life's chief joys, are women, baths, and wine.

There is a spirit vapour-bath of exceedingly simple construction, which is found very serviceable where the object is to apply heat without disturbing the patient. It is of wicker-work, which, when used, is covered with blankets of the length of the patient's body. It stands about eighteen inches high, with a board at the lower end, and with a space at the upper end, leaving the head free: a curved tube of about two feet conveys the heated air from a burning spirit lamp, under the basket work, so as to bring it in contact with the patient's naked body. Sulphureous and other vapours might be administered by means of this convenient bath.

SECT. XI.—*On Bathing, as connected with the different stages of life.*

1. *Children.*—The advantages of bathing, to children, are generally admitted. It is much disputed however, whether the cold or the tepid bath ought to be preferred. The celebrated Galen was of opinion, that a cold bath greatly retards the growth of the body; and he never wished that it should be applied, until a young man had reached nearly the twenty-fourth year of his age; even then he conceived that it should

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* There is a full description of this bath, accompanied by engravings, in the Transactions of the Society of Arts, vol. 30. p. 181. It is there stated, that it answers the various purposes of a cold and warm shower-bath, warm air-bath, as well as a vapour-bath, the same machine admitting a great variety of applications.

be commenced with the greatest precautions [*].

Others maintain, that though it may be proper to begin with a moderately tepid bath, yet infants may soon be inured to cold bathing; which, even if it check redundant growth, strengthens the soft fibres, and confirms the stamina [†]. It should not however, be carried too far, but continued only whilst the children are evidently the better for it. Perhaps alternate hot and cold bathing, according to the doctrine of Celsus, would be the most expedient. It is at least very certain, that by the proper use of the warm bath, many infantine diseases may be entirely prevented, teething rendered easy, catarrhs suppressed, the rickets cured, and the whole physical condition of the child, considerably improved.

It may be proper to add, that the occasional use of the warm bath, will be found highly conducive to maintaining the skin in that state of softness and permeability, which is not only a sign of good health, but which, in those cutaneous diseases to which infancy is liable, tends to facilitate the eruption, and consequently to diminish the danger [‡]. Perhaps the system which will in general prove the best, is to give a child the advantage of the cold bath every morning, and of a tepid bath once or twice a-week at bed-time.

2. *Middle Aged.*—In manhood, cold bathing should be resorted to with resolution and perseverance; and those who practise bathing in the proper season, or who wash the whole body every morning, will find ample reason to continue it for life. To the infirm and delicate also, it is in general very serviceable. The frequent use of the bath, and perhaps alternate hot and cold bathing, will be found the most effectual means of clearing off impurities from the skin [§]. Indeed it may be regarded, as a species of universal domestic remedy, intimately connected with cleanliness, and, in a great variety of cases, one of the surest means by which health and vigour can be sustained.

3. *The Aged.*—That distinguished philosopher, Adam Ferguson, remarks, that bathing is most natural in climates, where

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[*] Gal. Comm. 3. In lib. de victu in acutis, C. 44, Edit. de Chartier. Also, Hygiene by Halle. Code of Health, 2d edit. vol. iii. p. 373.

[†] Harper's Economy of Health, p. 29.

[‡] Willich, p. 196. [§] Ibid. p. 231.

the people are rendered idle by the extremes of heat and cold. He adds, there is no inconvenience attending it, but the loss of time, which may be too precious to be so employed. The Romans, it is true, devoted much time to it; but they were a very idle people, particularly under the Emperors. His objection however, does not hold good in regard to such of the aged, as have little to do but to attend to their health *. The unimpaired perspiration, the elasticity of the minute vessels, and the due consistence of the circulating fluids, may enable the young and healthy to resist impurities. But the delicate, and the aged, are in a different state; the slowness of their circulation, the thickened state of their fluids, and the constant efforts of nature to propel impurities towards the skin, combine, to render the frequent washing of the body, an essential requisite to the comfort of their existence.

Cold bathing is not to be recommended to the old, or even to the middle-aged, unless they have been accustomed to it early, and have persevered in the use of it. The enduring of cold is an affair of habit, and cold bathing therefore, can never be attempted with impunity, by persons advanced in life, and unaccustomed to it. The warm bath however, is of an opposite description; for warmth, combined with moisture, will support the feeble, and give health to the shattered constitution †. Indeed, at the approach of old age, the secretions are less copious, and various other functions begin to fail. The diminution of the cutaneous secretion in particular, gives rise to that harsh feel of the skin, so common in old age. In such cases, the habitual use of the warm bath, for half an hour, twice a-week, may be considered as one of the most grateful and salutary enjoyments of declining strength. The celebrated Franklin adopted this practice on the recommendation of Dr Darwin, and continued the use of it till his death; and, at an advanced age, it afforded him relief, under the excruciating torments of the stone ‡.

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* Code of Health, vol. i. p. 443. In 1807, Dr Adam Ferguson had used the warm bath for above two years, at the temperature of 96° to 97° of Fahrenheit, and found it of use. He even became less subject to *colds* than formerly, though he went about freely after the bath. He bathed about the middle of the day.

† Este's Cursory Remarks on Contagious Diseases and Baths, p. 58.

‡ Zoonomia, 696. Treatise on Cold and Warm Bathing, p. 51.

In conclusion, we may say of bathing, with a celebrated poet,

> "This is the purest exercise of health,
> The kind refresher of the summer heats:
> Nor when cold winter keens the bright'ning flood,
> Would I, weak-shivering, linger on the brink.
> *Thus life redoubles.*" THOMSON.

CHAP. VI.

CIRCUMSTANCES OF A MISCELLANEOUS NATURE, ON WHICH HEALTH AND LONGEVITY IN SOME MEASURE DEPEND.

The circumstances of a miscellaneous nature, which influence health and longevity, are, 1. Rank or situation in life; 2. Education; 3. The particular occupation or profession adopted; 4. Marriage; and, 5. Amusements.

1. *Rank in Life.*

It has been justly observed, that it is not the rich and great, nor those who depend on medicines, who attain old age, but such as use much exercise, breathe pure air, and whose food is plain and moderate [*]; and persons of that description, it is certain, stand the best chance of living long. The plainness of their food exempts them from many diseases, and renders those by which they are attacked, less dangerous; the labour they must necessarily undergo, not only clears their blood from many noxious humours, but also gives them sound repose at night, by which their strength is renovated. Exposure to the vicissitudes of the seasons, hardens and invigorates their frame, and enables them longer to retain the possession of their physical powers; while, by being exempted from many agitating passions to which the higher orders are exposed, their minds are not affected by circumstances, which occasion much distress, and many fatal disorders, among persons of a superior rank in life.

Hence it would appear, that the situation of the middle, and even the lower classes of society, is peculiarly favourable to longevity.

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[*] Hufeland, vol. i. p. 164. Fothergill, Annual Register, anno 1786. Natural History, p. 64. See some excellent observations on this subject, in Short's Tables of Bills of Mortality, p. 145, 146, 147.

It is contended however, by some, that the lower orders suffer much, from the want of richer food, finer liquors, better houses, and more substantial clothing. Let us consider these points separately.

Those who account it an advantage to live on great quantities of rich food, do not consider the consequences of such diet. Were a person to be told, on having a luxurious repast spread before him, that if he ventured to partake of it, he would immediately be subjected to the severest tortures, the instruments of which were shewn him, few would wish to partake of the entertainment. Yet, in fact, the case is nearly similar with those who live luxuriously, for though the tortures they must experience are not immediate, they are certain. The gout, and various other complaints, the necessary results of overfeeding, sooner or later attack them, and make them sincerely wish that they had lived on plainer fare, and had not yielded to the temptations of the table.

With regard to liquors, though the stronger sorts may be of use as medicine, and, if taken in moderation, occasionally as stimulants, and though they promote the pleasures of social intercourse, yet none of them are essential to health, and any excess in them is most pernicious. Perhaps, on the whole, with a view to health, the simple element of pure water is the best drink for *general use.* In the preceding part of this work, where the subject of liquid food is treated of, (see Part I. Chap. II.) the means are pointed out, by which this valuable beverage, in its purest state, may be rendered accessible to the humblest individual, in any situation, where water is to be procured in sufficient quantities.

In regard to warm houses, there is reason to believe, that the exclusion of air, is too often carried to an excess in our northern climates. In proof of this assertion it may be stated, that Dr Lyne, an Irish physician, who died of the small pox at the age of 85, built a house, so as to have the full benefit of the circulation of the air. Every window had another opposite to it, none of which he ever suffered to be shut or glazed; but they were continually kept open, without any defence against the weather. The room the Doctor lay in, had four open windows, two on each side of his bed. It was remarked, that for fifty years together, nobody died in his house, although he always had a numerous household. Upon his death, his son glazed all the windows, soon after which there were several buried out of the house

Dr Lyne's maxim was, " That no house was wholesome, where a dog could not get in under the door, and a bird at the windows."

We have already had occasion to treat very fully on the subject of clothing, (Chap. I. Part II.); and referring to what has been there said, we have merely to observe, that warm clothing, although necessary, particularly for infants, ought not to be carried to excess; and that custom will enable a person comparatively lightly clad, to withstand the cold better, than if encumbered with a superfluous load of clothes.

But even were it admitted, that, in some respects, more especially during sickness and old age, the situation of the poor is not so eligible, as that of those in the higher and wealthier classes, still the circumstances of the lower orders, ought to be compared, not with those of the higher or even the inferior ranks in civilized society, but with those of man in a barbarous state, and then the advantages of the situation in which they are placed, will appear more evident. Without going to the wilds of America, or of New Holland, it appears from the most unquestionable authority, that the inhabitants in the more mountainous districts of Scotland, lived, in times not very remote, in a most miserable manner †; nor was England itself in a much better state about two or three centuries ago. Erasmus ascribes the frequent plagues in England, to the nastiness, dirt, and slovenly habits of the people. " The floors," he says, " are commonly of clay, with rushes, " under which lies, unmolested, an ancient collection of beer, " grease, fragments, bones, spittle, excrements of dogs and " cats, and every thing that is nasty."

Holinshed, who lived in Queen Elizabeth's reign, gives a very curious account of the plain, or rather rude way of living of the preceding generation. There was scarcely a chimney to the houses, even in considerable towns. The fire was kindled by the wall, and the smoke sought its way out at the roof, or door, or windows: The houses were nothing but wattling, plastered over with clay: The people slept on straw pallets, with a round log under their head for a pillow; and almost all the furniture and utensils were of wood. Such representations, however well authenticated,

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* Smith's State of the County and City of Cork, vol. ii. p. 429. Watkinson's Philosophical Survey of Ireland, p. 189.

† See in particular the Statistical Account of Scotland, parish of Fortingall, vol. ii. p. 458.

seem hardly credible in these times; yet there is reason to believe, that many common beggars now possess more of the comforts of life, than were enjoyed, even by the higher classes, in those rude and barbarous ages.

2. *Education.*

There is perhaps no subject which has been more completely investigated than that of education. Not only has every particular connected with it, been discussed by an infinite number of writers, but it has been treated by such distinguished authors, as Locke, Milton, Rousseau, Helvetius, Chesterfield, and many others, who have anticipated almost every idea, *in a moral point of view*, and connected with courtesy of deportment, which can be brought forward regarding it; and in various other publications, *the physical part of education* has been ably explained *. It only remains therefore, to give some general views of the doctrines which have been already promulgated, interspersed with such observations as may have occurred to the author, in the course of his own personal experience in the management of a numerous family.

The importance of education, both physical and moral, cannot be too highly estimated. The future health and happiness of every individual must, in a great measure, depend upon it. At the same time, it is not surprising, that so few should be completely educated. The constant vigilance and superintendence which are indispensable, combined with pecuniary considerations, and the difficulties arising from the varied talents or tempers of pupils, present obstacles, which, even where the parents are in affluent circumstances, and have ample time at their command, are frequently insurmountable. But when, in addition to that, we look to the condition of parents in moderate or narrow circumstances, constantly occupied in earning subsistence for themselves and their families, by professional or manual labour, the wonder is, not that education should be incomplete, but that, as in Scotland in particular, we should find so many of the poorer classes well educated, and creditably accomplished.

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* See Les Œuvres de Pierre Camper, edit. 1803, vol. iii. p 223, where there is an essay, in answer to the question publicly proposed, regarding the rules the most proper for the education of children, and the most likely to preserve man in good health, and to enable him to reach a great age. See also Buchan's Domestic Medicine, chap. i.; and his Advice to Mothers, in an 8vo volume, printed anno 1803.

The subject of education in general, without alluding to particular professions or situations in life, may be treated of under the following heads: 1. Food; 2. Air; 3. Exercise; 4. Amusements; 5. Habits; 6. Health; 7. Personal appearance and behaviour; 8. Mental information; and, 9. Moral and religious instruction.

A few cursory observations on each of these heads, is all that the limits of this work will admit of.

1. In addition to what we have already said on the subject of diet, it may be proper to observe, that too great stress seems in general to be laid, upon the necessity of the child being nursed by the mother. Where this can be effected, it certainly ought to be preferred; but where any circumstance renders it either inconvenient or improper, the milk of any other healthy woman, living on a plain diet, and having nothing but an infant to attend to, is as nourishing, and as well calculated to rear an infant, as the milk of its own mother, more especially if the latter's mode of living be either luxurious or irregular, or if her attention be distracted by a number of other avocations *. In many cases, an attempt is made to rear children *by the spoon.* This system however, cannot possibly be recommended; and the most fatal consequences have resulted from it, wherever it has been tried to any extent. Camper observes, that the milk of goats has been found the best substitute for that of the woman; a fact which, as it is not generally known, it is proper to mention †.

When milk becomes no longer necessary, there is no food more wholesome than boiled oatmeal, with milk. The meal however, ought to be properly prepared, as it almost uniformly is in Scotland; that is, the grain ought first to be thoroughly dried in a kiln; it ought then to be cleared from the husk; and, lastly, ground into coarse meal. Wheat-flour is frequently made use of; but it is too glutinous, and occasions costiveness, whereas oatmeal is laxative. If panada be used, it is better to make it of biscuit, than of fermented bread.

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* The ingenious author of the Manual of Health, p. 273, has some judicious observations on this subject. He remarks, "that suckling, if accompanied by weakness, or want of appetite, is attended by the risk of bringing on tubercular inflammation. Yet, whether it be that novel writers and poets, with the whole race of sentimental penmen, who seem, as it were, *ex officio*, ignorant of the human economy, though none are more forward to give directions respecting it, have succeeded in their pernicious efforts to stir up the tender affections against the health,—as if it were not of greater importance, that a mother should preserve herself for her child, than suckle it for a few months, —we do not always prevail by our endeavours to put a stop to this practice, where it is most hurtful."

† West India goats are easily fed, have not a rank smell, give much milk, and the flesh of the ewe-goat, when properly fattened, is not much inferior to mutton; they seem to be a race of animals that ought to be encouraged in this country.

As children advance in years, their diet must be more nourishing, but ought always to be simple. Camper agrees with Plato in preferring, for the children of the rich, roasted meat to boiled. It is singular that he should condemn potatoes as food, more especially for children. Owing to their viscidity, he considers them as indigestible, and he quotes Boerhaave in support of that opinion. The potatoes of Holland however, are in general not of the mealy kind, but glutinous, and consequently more difficult to digest. Camper particularly recommends, on the authority of Xenophon and Lord Bacon, the eating of water-cresses, the use of which, he affirms, is one of the best means of preventing putrefactions, whether of the fluids or solids *. It is also one of the best remedies against the scurvy, to which we are all more or less liable.

In regard to wine, the same author thinks, that it should not be given to children more than once a-day, namely, immediately after dinner, and then only in small quantities. Hippocrates allowed wine to young people; but Plato, on the contrary, thought they should not taste it till they were eighteen years of age: in which opinion we are inclined to agree.

2. Pure air is more essential to children than even to grown people. The more tender the organs, the more sensibly they must be affected, by any defect in so essential a requisite of life. In warm countries, fewer children perish, because they are constantly out of doors; and in cold countries, those children are the healthiest, who are most frequently in the open air. Indeed, to be in this respect hardily reared, lays an admirable foundation of future strength and vigour. Those, for instance, who, when young, have constantly breathed the pure air of the mountains of Yorkshire, Wales, Scotland, or Ireland, never fail to experience afterwards, even when they are

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* An eminent physician however, states, that the daily use of this herb is fit only for strong stomachs. In others it occasions flatulences and eructation, and sometimes heartburn.

exposed to the dangers of an unwholesome climate, the advantages of this early treatment. They resist better the impression of the elements; they are less liable to be attacked by the gout, and other chronic disorders; and they enjoy health, whilst persons of the same age, differently reared, are martyrs to disease *.

3. An early attention to exercise, as a branch of physical education, cannot be too strongly recommended †. The ancients, it is well known, considered what they called the Gymnastic Arts, as one of the most essential branches of education. It is unnecessary however, to dwell on the subject of exercise in this place, as its nature and advantages have been already fully discussed in a former part of this work ‡.

There is, at the same time, one point, of which it may be proper here to take notice. Milton, in his "Tractate on Education," justly observes, that the training up of youth, cannot be considered as complete and generous, unless it fits a man to perform justly, skilfully, and magnanimously, all the offices, both private and public, of peace and war. On these principles, it seems to me essential, that boys should be trained to military exercises. Even girls are the better of being taught how to march. It makes them erect in their posture, and accustoms them to balance their bodies properly, not only in walking but in dancing. It also expands the chest, and improves the shape and appearance. In regard to military exercises for boys, not only marching, but the use of the musket is so essential, in critical times, in order to keep up the military spirit of the nation, that every boy at school ought to be taught, how to protect himself, and how, in case of need, to defend his country.

4. It is both a pleasant, and an useful plan, to have little dances, and other entertainments, for young people and their companions, provided regular hours are kept; otherwise this pastime is prejudicial. Such meetings, not only amuse the children, but teach them a politeness of behaviour, and a self-

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* Parents often err however, by exposing their children to cold, and bathing them incautiously in cold seasons of the year, in order, "*to harden them.*" This should never be attempted, without great precaution in regard to clothing. The young of all animals delight in warmth.

† Dr Beddoes, in his valuable Treatise on Consumption, attributes this disease, in a great degree, to inactivity; and it is probable, that exercise, properly managed, would frequently prevent a disorder, so fatal to the inhabitants of Great Britain. p. 117, 125.

‡ See Part I. Chap. V.

possession in company, which are of great advantage to them in after life. It also lays the foundation of future acquaintance and connexions, which may be of mutual service.

5. It is of great importance to teach children useful habits when they are young *. They ought to be taught early in life, great cleanliness of person; to pay particular attention to their teeth; to wash their eyes and mouth in cold water; to rise early; and other useful practices †.

6. Aristotle well observes, that an elegant person, is preferable to many letters of recommendation. It is incumbent therefore, upon parents, to prevent, if possible, or at least to lessen any personal defects with which their children may be threatened. Every endeavour, for instance, should be made, to correct the habit of squinting, or any other defect likely to render the appearance less agreeable. Care however, must be taken, not to injure the health, for the purpose of obtaining any imaginary beauty, as a small waist, or the like ‡. In regard to the behaviour of children; it will be found of great service, on proper occasions, to introduce them to strangers at home, as it prevents their being shy or awkward in company §.

8. To be early instructed in the means of preserving health, and of guarding against the various dangers to which individuals are exposed, and to know how to act when any unfortunate accident happens, is a most essential branch of education, which has hitherto been too much neglected. This subject has been lately taken up by an intelligent German author, who, in his Catechism of Health ||, points out the various particulars connected with their preservation and health, in which children ought to be instructed; and which contains information, which every individual will find useful in his progress through life. Some work of the same description, better adapted to the manners and mode of living of the inhabitants of this country, would be a most useful publication.

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* Children, when very young, get into a habit of eating their food too quickly, particularly fruit, and other substances of which they are fond. This habit ought to be checked.

† See Lord Bacon's Observations on Custom and Education, Essay fortieth, where there are many excellent hints on this subject.

‡ On Shape-mending. See Manual of Health, p. 402.

§ On the important subject of politeness of behaviour, I know no work so likely to be useful, as "The Elements of Polite Education," compiled from Lord Chesterfield's Letters, by the Rev. Dr Gregory, printed at London, in 1 vol. 8vo, anno 1800.

|| See the Catechism of Health, selected and translated from the German of Dr Faust, printed at Edinburgh, anno 1797.

9. Philosophers differ as to the age at which the instruction of youth should begin. Quintilian recommends three years, Plato six, Aristotle seven, and Chrysippus asserts, that parents may instruct their children at all ages. Aristotle justly observes, that nothing can be more reprehensible, than to exact too much from children, at any age, for great fatigue of body must injure the mind, while over exertion of the mind is prejudicial to the body *. Although

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* The following observations, transmitted to me by a respectable friend, upon this interesting subject, merit particular attention: " As far as regards health, I think the modern system of education, which is made to commence almost with infancy, extremely reprehensible. I do not say, that the human faculties are incapable of exercise at a very early period; but, I apprehend, they may be exercised, perfectly consistent with health, in a manner even more useful than in book-learning. You, Sir, who know so much of agriculture and rural affairs, need not be informed, that our common clowns sometimes possess more useful knowledge than our philosophers; and that Homer and Pindar, do not contain all that is requisite for man to know. I see a remarkable difference between children educated in the metropolis, and in the country. The former, though they may have read more books, are yet more deplorably ignorant than the latter; they know nothing of the growth and progress of the commonest vegetables, and still less of the animal creation. The contemptuons term of *Cockneys*, which is applied to them, I apprehend, to be expressive of their ignorance in every thing beyond the precincts of the kitchen; and I certainly would rather that my son should be guilty of a false quantity, in reading a Greek or Latin poet, than ignorant of those subjects in which all mankind are interested.

" The education of the body, does not however, preclude that of the mind; and, if people are not in too great a hurry, there is time enough for both. The *præcox ingenium* I have seldom found answered by maturity; and the powers of the mind are generally, in those cases, overpowered by a debilitated and exhausted body. When the bones and cartilages are soft, the sinews unstrung, the whole body a fasciculus of blood-vessels, and in a growing state, then, pure air, and almost constant exercise, are required to give, by action, stability to the frame. Providence, in the unerring dispensation of nature, has pointed this out; for young persons can scarcely endure a state of bodily inactivity. They should range among the woods and fields, be encouraged in active sports, and, as I before observed, there are many ideas to be gained without the aid of books. At least I would deprecate strongly too much restraint. My own youth, till fifteen, was spent in fishing, hunting, and field sports. At that period, I could not correctly spell my own language, knew little of Latin, nothing of French, or Greek, or mathematics; but between that age and twenty, I found time, (and under great disadvantages), to acquire a mass of knowledge, equal to that of most of my age; and to the wild tenor of my youth I ascribe, in a great measure, the vigorous constitution I now enjoy; and I now can, I believe, bear a sedentary life much better, because my early years were not sedentary; perhaps, indeed, my mind is more vigorous for it as well as my body; besides that, having a fondness for study, my attachment to it, at a time of life, when young people are too apt to fancy they have attained sufficient, kept me, I believe, out of vice. What is learned also, at rather an advanced period, is better learned.

" There is however, one reason for exacting some application from young it is proper therefore, that a creature so responsible as the human being is, should never forget, at any period of his life, that he had some duty to perform, yet still the infant mind should not be overtasked.

The studies of children ought to be directed in such a manner, as not to disgust them, or to make them abandon them ultimately. They should be made rather a source of amusement, than a burdensome task. It is of use to make them recite their lessons with a loud voice. Indeed to read aloud some instructive work, is an excellent and a wholesome practice both for young and old. When children are accustomed to this practice early, any awkwardness or dislike to it is removed, and much useful knowledge may be thus disseminated in a family.

To what extent the memory ought to be exercised, is at the same time, a difficult point to determine. It is certainly right, where a youth has naturally a good memory, to give it ample occupation; but to force it too much, weakens the intellectual faculties, and injures the health. It is better to give occupation to the talents and judgment, than to overload the memory.

Among the various branches of knowledge to be acquired in youth, that of arithmetic is one of the most important, and it ought to be much more attended to than is generally the case. Indeed, unless children are accustomed to figures at an early period of life, they take a dislike to the study, and a prejudice against all professions where arithmetic is necessary; whereas, in every situation in life, a knowledge of that useful science is essential.

In the education of children, it is of great consequence to institute a system of rewards, rather than to resort unnecessarily to severity. Thus the acquirement of new privileges in the family, as breakfasting in the parlour with their parents, dining, or drinking tea there, &c. &c. may each, in their turn, be made the reward, for the acquirement of some

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people, but not in the very tender years, and that is, to prevent them from contracting idle habits. For this reason, the indolent should always be compelled, either to some bodily or mental exertion. Neither am I arguing, that no moral coercion should be used, or that habits of order, obedience, and regularity, should not be enforced. But, indeed, Sir, the modern system, from the confinement of the nursery, where miss or master must not venture abroad, for fear of soiling their frocks, or falling into a ditch; to the confinement of the infant seminary, where they learn many things to be afterwards unlearned, or at least forgotten, is utterly subversive of health and vigour, and is calculated gradually to enervate the hardy British race."

language or accomplishment, for the improvement of the carriage, the abstaining from some bad habit, &c.

Nothing in the progress of education is more beneficial, than the practice of annually drawing up an account of the course of study which has been pursued. In such accounts, which ought to be subscribed by the children themselves, a summary ought to be given, of the progress they have made within the year, the books they have read, the masters they have attended, &c.

In regard to schools, there can be no question as to the propriety of sending healthy boys to public schools, were it only for the purpose of giving them a knowledge of human nature, and preparing them for scenes in which they must afterwards take an active part *. As to girls, a private education is better, excepting perhaps for a year or two, previous to their being introduced into life. I have seldom seen a proper foundation laid at very large schools for girls, in regard to writing, spelling, arithmetic, music, and other essential accomplishments. Indeed, at large schools, there are often too many, to admit of all being properly attended to. The art of teaching however, is now so much improved, that we should do injustice to schools of a moderate size, and to the teachers in them, were we not to acknowledge, that excellent spellers, writers and arithmeticians are made at those seminaries. After laying a foundation therefore, at home, under the eye of the parents, such a school may be of use, for one or even two years, to complete the education thus founded, to excite emulation, to see more into the character of others, and to shake off a little of the familiarity of domestic life.

10. There still remains that most important of all the branches of education, the improvement of the moral character, and the laying a proper foundation of religious principles.

It cannot be expected, that so extensive a subject, can be much dwelt upon in a work like the present, more especially

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* A very intelligent correspondent has remarked, that the mode of instruction and discipline pursued at our public schools is obsolete, and not adapted to the times. The boys are also too numerous; and their morals and health therefore, cannot be properly taken care of. He considers therefore, a private school, where there are from 30 to 50 boys, infinitely preferable. I approve of such a school, as preparatory to a larger one; and I am satisfied, that the great public schools might, in various respects, be much improved. But with all their disadvantages, I think, that a boy, destined for active life, ought to have his classical education completed at a great public seminary.

as this is a particular, which is very generally attended to, at least in so far as regards the religious tenets of the country where any individual is born. It may be mentioned, that the celebrated Helvetius has recommended the use of a *moral catechism*, and given an example of it, which, in many respects is drawn up with much ability *. This hint might be greatly improved upon, and is well entitled to the attention of those who interest themselves in the improvement of the rising generation †. The points chiefly and most particularly to be inculcated on youthful minds, are the following: A strict regard to truth;—Fidelity to promises or engagements;—A horror at the violation of property, without which civilized society could not exist;—Affection for their more immediate connexions, since, as Dr Johnson remarks, "*relations are ready-made friends*;"—A warm attachment to their country;—And a deep conviction of the existence of a Deity, and the necessity of obeying his commands, as revealed in the Scriptures.

I have thus drawn up a few cursory observations on the subject of education; and I trust that these hints may furnish information to others, which they may improve, and adapt to the peculiar circumstances in which they may happen to be placed.

3. *Professional Occupations.*

The various trades and professions, as connected with health and longevity, may, with propriety, be considered under the following arrangement: 1. Labourers in the country, or husbandmen; 2. Labourers in towns and villages, or the manufacturing class; 3. Miners; 4. The military class; 5. The seafaring class; 6. The commercial class; 7. The sedentary, studious, or learned class; and, lastly, The political class. In one or other of these classes, or in their respective families and dependents, every individual, in a great community, with the exception of the idle, and sick poor, whether settled or vagrant, must be included.

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* See a Treatise on Man, a posthumous work by Helvetius, translated by Dr Hooper, in 2 vols 8vo, printed at London, anno 1777, vol. ii. p. 412.

† HELVETIUS JUSTLY OBSERVES, THAT THE PRESERVATION OF PROPERTY, IS THE MOST SACRED OF ALL RIGHTS. IF ONE COULD REAP THE HARVEST, WHERE ANOTHER HAD PLOUGHED THE LAND, AND SOWED THE SEED, NO MAN WOULD PLOUGH OR SOW, AND THE WHOLE COUNTRY WOULD BE EXPOSED TO THE HORRORS OF FAMINE. FROM THE MOMENT THAT ANY ONE CAN, WITH IMPUNITY, USURP THE PROPERTY OF ANOTHER, MANKIND RETURN TO THE STATE OF WAR, ALL SOCIETY IS DISSOLVED, AND MEN MUST FLY FROM EACH OTHER AS FROM LIONS AND TIGERS. Vol. ii. p. 415.

1. Without disparagement to the other classes of society, that of the husbandman must be accounted the most important and essential, for without agricultural industry in raising food, no political society could possibly be maintained. The labours of this class therefore, may be taken as the basis on which the existence and prosperity of every political community must depend; and if, by their exertions, a sufficient quantity of wholesome provisions be raised, a state can hardly fail to prosper.

The situation of the husbandman has been represented as unfavourable to health and longevity. Engaged, it is said, in incessant labour, and exposed to the extremes of heat and cold, liable to all the inclemencies of the elements, and annoyed by numerous cares and anxieties, arising from variation of seasons, deficiency of markets, and other casualties, the best constitution is worn out. We cannot help thinking however, that persons employed in agriculture enjoy many advantages: Their labour indeed is constant, but not in general so violent, as to exhaust the strength by over exertion. The variety of employment also, to which they are accustomed, is a favourable circumstance; the air they breathe is pure, and in general, uncontaminated by any noxious vapours; the diet is commonly wholesome; the hours they keep regular; the mind is as much exempted from care and anxiety, as in most other active professions; and they are exposed to fewer temptations to vice than those who live in crowded society *.

2. The manufacturing and labouring classes are the next, in point of importance; for food itself would be of little avail, without the advantages which their labours produce, particularly with regard to clothing and shelter. It is much to be regretted, that many of the trades in which this class of labourers is employed, are unwholesome; and every practicable expedient ought undoubtedly to be resorted to, in order to diminish this source of injury to health. For instance, wherever any machine is invented, to answer the purpose of

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* See these particulars more fully enlarged upon, in a very ingenious essay on the preservation of the health of persons employed in agriculture, by Dr Falconer, printed separately, anno 1789, and also published in the 4th volume of the Papers of the Bath Society. It is said, that the profession of a gardener, if accompanied by temperance, is, on the whole, the most healthy of any.

manual labour in an unwholesome trade, the use of such machine ought to be promoted, by private assistance and public encouragement. Laws ought also to be enacted, (such as those with regard to the cotton trade), by which the use of machinery, likely to be, in any great degree, hurtful to the health and constitutions of the manufacturers, ought to be prohibited, or at least placed under proper regulations. It would be extremely desirable, to publish works, pointing out the precautions, by which manufactures, in some degree necessarily unwholesome, may be carried on in the manner least injurious to the workmen employed. A work of this sort, *on the diseases of artificers*, was published by a respectable foreign author above a century ago, and has since been translated into English [*]; but it is remarkable, that no good work, on this interesting subject, has been written, by any of the numerous disinterested and genuine philanthropists of this great manufacturing country. Those individuals who lose their health in occupations which are dangerous in themselves, but useful to society, ought to be maintained in their old age, in a comfortable manner, at the public expense; or at least some special encouragement ought to be given, to the formation of friendly societies among such artizans, by which a provision might be made, on their arrival at a certain period of life, for their retirement from their dangerous trade [†].

It has been much disputed, whether it is most expedient, to have manufacturers collected in towns and great villages, or scattered over the country. Whatever may be the case in regard to profit, there can be no doubt, as regards health, that the latter plan is the most advantageous; and the happy effects which have been produced by it, in the western parts of Yorkshire, in the northern parts of Ireland, and in various parts of Scotland, render it desirable, that such a system should be generally adopted.

3. The mining class certainly forms a most important and valuable body of the community, without whose aid, many

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[*] See Bern. Ramazzini, " *De Morbis Artificum Diatriba.*" Printed at Utrecht, anno 1703; translated by Dr James into English, and published anno 1746, under the title of, " A Dissertation on Endemial Diseases," by Fred. Hoffman, and a Treatise on the Diseases of Tradesmen, by B. Ramazzini. There are some general observations on the Diseases of Tradesmen, in Valangin on Diet, p. 64, and the Manual of Health, p. 128.

[†] Where a manufacture is highly prejudicial, as that of white lead, (in which a healthy man is destroyed in three years), it would be a good regulation, to employ none but convicts for capital offences.

branches of manufacture could not be carried on, and many of the comforts of life could not be enjoyed. There are some mines, as those of lead, which are unwholesome; yet there are several instances of old age among miners *; who, when they are put on a proper system, seem to be as strong and healthy as other men. It is well known, that the miners of Cornwall are remarkable for their strength; and it appears, from undoubted authority, that the colliers of Alloa in Scotland, are as healthy as people of any description usually are †.

4. The military are, in general, strong and healthy, more especially where they are kept under a proper system of discipline. Indeed those soldiers who have survived the dangers of war, are remarkable for long life. They are usually stout and vigorous men; and the regular hours and habits to which they are accustomed, no less than the daily exercise which they are obliged to take, and that attention to cleanliness which is enforced, contribute greatly to preserve their health. They are besides now, to a certain extent, *picked men;* so that there is not perhaps in the world, a more healthy body of men, than the private soldiers of the British army ‡.

5. It has been generally supposed, that a seafaring life is unfavourable to health; it is very certain however, that those who survive the hardships and exposure of life on shipboard, are likely to attain longevity. Among the out-pensioners of Greenwich Hospital, there were, in 1802, twenty-three above eighty years of age, and not fewer than ninety-six among the in-pensioners, making, in all, one hundred and three, out of four thousand nine hundred and nine individuals §.

6. The commercial class, when their strength and spirits are not injured by hazardous speculations, are healthy and

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* As John Taylor, a miner in Leadhills, Scotland, who lived to be 132 years of age; and there was an old miner in Switzerland, whose body was dissected, who lived to a great age. A particular account of Taylor is given in Smellie's Phil. of Nat. Hist. vol. i. p. 528.

† See Statistical Account of Scotland, Parish of Alloa, vol. viii. p. 619. Out of 520 colliers, male and female, anno 1792, 56 were above 55 years of age.

‡ Dr Jackson's Observations on the Health of the Soldier, are well entitled to particular attention.—There are some useful observations on the same subject in the Military Mentor, printed in 2 vols 8vo, anno 1804, vol. i. letter ii. p. 6. See also Xenophon's Instructions for a General of Cavalry, printed in London, anno 1802, 4to.

§ Dr Trotter, in his *Medicina Nautica*, explains the means of preserving the health of seamen, with much skill and ability.

long-lived. Their labour is not oppressive; they have leisure at command, which they can devote to air and exercise; and, as a merchant of the city of London once remarked, no class of people know so well in what true comfort consists. Retail traders and shop-keepers, compose a large portion of the middle rank of society; and as they are in general well educated, and well informed, and dependent for success on steady and regular habits, they are likely, *cœteris paribus*, to lead comfortable and healthy lives.

7. The studious, and those who are engaged in the learned professions, seldom attain very great longevity; 80 years may be considered their maximum *.

Lawyers are said to be rather a short-lived race; but this rule is certainly not without exceptions. In particular, it has been lately ascertained, that the average of life among the members of the Faculty of Advocates of Edinburgh, considerably exceeds that of any other class in the community; and the longevity of the Scotch Judges is proverbial. This perhaps may be in some degree attributable, to the very healthy climate of Edinburgh. Nor is there, it would seem, any thing peculiarly unhealthy in the labour of a lawyer; and when it is considered, that lawyers in good practice, have but little time for dissipation, and that in Edinburgh, the long vacations leave the profession six months of comparative ease and relaxation, during which many of them retire to the country, the longevity of the members of the legal bodies in Edinburgh, need occasion no surprise.

Although there are, in modern times, few physicians who live to the extreme of old age, still the medical profession, is far from being remarkable for shortness of life among its professors. This is the more to be wondered at, when the risks they run from contagious disease is considered, and the harassing life they often lead.

The clergy, at least in Scotland, generally live long. This might be expected from the regular lives they lead, and the few worldly cares to which they are exposed. The best proof of the advantages of regularity in habits of life, is afforded by the fact, that the wife of an old clergyman, usually enjoys long life.

Astronomy, like every other occupation which exposes those engaged in it to much of the open air, seems to promote long life. It is said that of 85 persons who have devoted themselves wholly to astronomical pursuits, five lived to between 90 and 100 years of age; 18 to between 80 and 90; 25 to between 70 and 80; 17 to between 60 and 70; and only 20 died younger than 60.

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* See the List of Literary Characters who died at a good old age, in the last and the preceding century. Code of Health, 2d edit. vol. ii. Appendix, p. 74.

In regard to the studious and learned, they do not, in general, appear to live so long in modern, as they did in ancient times. The philosophers of Greece and Rome, were not shut up in confined seminaries, but acquired their knowledge by travelling; and dispensed the knowledge which they had thus acquired in gardens and public walks. Hence they led an active life, which has always proved favourable to health and longevity. When men of letters, in modern times, live long, they seldom enjoy so vigorous a state of health, as persons in the country, whose minds are less harassed, and who use much bodily exercise in the open air.

8. The last great division is the political class, an important one in all countries, and forming, in a free state, a numerous body of the community. It is seldom that this description of men live long, unless they have sense enough to retire early from public business. Indeed the first object they ought to have in view, as an artful politician once declared, is to secure a good retreat. We have had, in late times, sufficient proof of the injurious effects of political pursuits, in the premature deaths of many of our most eminent political characters. The engrossing and harassing nature of their pursuits; and, in Great Britain, perhaps the unseasonable hours at which legislative business is carried on in Parliament, seem to wear out life. A retrospect of the last thirty years, presents us with a list of not fewer than seven distinguished statesmen who have sunk, almost in the prime of life, under the turmoil and anxieties of their public duties, viz. Pitt, Fox, Whitbread, Romilly, Liverpool, Castlereagh, and Canning.

In taking this general view of the various occupations of man, we are sensibly struck with the truth of the commonplace observation, that the comforts of life, are, on the whole, very equally distributed over society. And however trite the observation may be, the moral which it inculcates is not the less sound, namely, that we ought to rest satisfied with the condition in which Providence has placed us, resolving to make what may be within our reach, contribute as much as possible to health, comfort, and happiness.

4. *Marriage.*

Buffon observes, that, after puberty, marriage is the proper state of man, and most consonant to his nature and circumstances *. In youth, says Bacon, wives are our mistresses, companions in middle age, and nurses when we get old, so that a man may always find reasons in favour of matrimony †. But the author who has most fully treated on this subject, is Hufeland ‡. He considers the married state as indispensably requisite for the moral perfection of mankind. He contends, that it prevents debilitating dissipation on the one hand, and cold and unnatural indifference on the other; that it moderates and regulates enjoyment, whilst it promotes domestic felicity, which is the purest, the most uniform, and the least wasting of any; the best suited to physical as well as moral health; and the most likely to preserve the mind in that happy medium, which is most favourable to longevity. It also lays a foundation, not only of the happiness of the present generation, but of the future; since it is the matrimonial union alone, which produces to the state well-educated citizens, accustomed from their youth to regularity, and to an observance of the duties they have to perform.

It is singular also, that by far the greater proportion of those who have attained great age, were married; and though sailors and soldiers have no particular inducement to marry, yet, out of a hundred and twenty-seven aged people, who were pensioners in the Hospitals of Greenwich and Kilmainham, there were only thirteen bachelors; the remaining one hundred and fourteen having been married men.

Marriages however, are not to be indiscriminately approved of. To make them answer the purposes of health, and the other objects to be kept in view in the connubial state, there ought to be a parity of station, a similarity of temper, and no material disproportion in years. It is owing to the want of some of these most essential requisites, that the married state proves so often the source of misery, instead of joy and comfort.

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* Buffon, Vol. ii. p. 422.

† See Bacon's Works, vol. iii. p. 309, Essay VIII.—Of Marriage and Single Life.

‡ He represents a bachelor as a mere egotist, restless and unsteady; a prey to selfish humours and passions; and less interested for mankind and for his country, than for himself. But to this description there are many exceptions.

5. *Amusements.*

In the earliest ages of society, mankind are so completely occupied in providing themselves with the necessaries of life, that they have no leisure to attend to matters of mere amusement. But, in process of time, when anxiety regarding the immediate means of subsistence is no longer felt, many individuals are at a loss how to occupy themselves; hence a variety of pastimes have been invented, to fill up irksome hours. These amusements are either engaged in publicly, or partaken of in private society. In a general point of view, they are of use: 1. As a mode of spending time *with innocence*, where mere amusement is alone intended. 2. As a means by which the tone of the mind, exhausted by severe mental labour, may be restored. 3. As connected with some commercial and agricultural advantages. 4. As a mode, in some cases, of diffusing knowledge, and in others, of inculcating morality; and, 5. As furnishing occupation to numbers of individuals, who, in a populous country, might otherwise find it difficult to procure the means of subsistence. How far they are conducive *to health*, or may be rendered so, is the subject of this section.

I. *Public Amusements.*—The public amusements which it is proposed here to touch upon, are, 1. Rural Festivals; 2. Public Games; 3. Public Lectures; and, 4. Theatrical Representations.

1. *Rural Festivals.*—These are by far the most useful and the most innocent of all public amusements. Sometimes, under the name of *Fairs* *, they are periodically held for commercial purposes, but with a mixture of rural festivity. Of late, rural festivals however, have answered more important purposes. They have been rendered the medium of diffusing information of a most valuable description; of encouraging improvements in agriculture †; and in remote parts of the country, they induce the principal families in the

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* Evidently derived from the Latin *feriæ*. They were originally religious festivals, instituted in honour of the saints: but advantage was taken of the concourse of people thus assembled, to promote the objects both of pleasure and of commerce.

† Thus, in regard to ploughing-matches, it has been remarked, that in the same county, (that of Stirling in Scotland), where ploughing-matches are unknown, the operation is generally performed in a slovenly manner; whereas, within the bounds of the Gargunnock Club, by whom ploughing-matches are encouraged, the form of the ridges, and the manner in which the furrow is turned, furnish a model of perfection.—*General Report of Scotland*, vol. iii. p. 421.

district and its neighbourhood, to assemble, by means of which relations meet and renew their intimacy, and friendships are formed and confirmed. Where such events take place, the period of these meetings is looked forward to with pleasure, and amidst the innocent gratifications of social intercourse, the interests of agriculture, and the improvement of the country, are promoted *. Fairs however, may become the source of very different scenes, leading to vice and debauchery of every kind; or, as in Ireland, to the worst crimes. The magistrates in the neighbourhood of London, indeed, have considered it advisable to suppress them, as much as possible, on account of their immoral tendency.

Among rural festivals, horse-races may be included, though they have in many cases become an object of speculation, and a source of plunder, rather than of amusement; yet, when they are confined to the object for which they were instituted, that of improving the breed of the noblest of our domestic animals, they cannot well be objected to, since they furnish a pastime at once useful and amusing.

2. *Public Games.*—The Olympic Games, were undoubtedly the most magnificent of all public amusements; and materially contributed to that elevation of mind, and splendour of genius, by which the Greeks were distinguished.

The tournaments in the days of chivalry, were likewise extraordinary public exhibitions, excelling in splendour those of modern times, though, being confined to martial sports, they were inferior in variety to the Olympic games. The revival of public meetings for athletic exercises, which has of late taken place in Scotland, is well worthy of encouragement.

3. *Public Lectures.*—There is no amusement more rational, than that of attending such public lectures as are calculated for the diffusion of useful knowledge; not as branches of education, but for the instruction of those, who, though advanced in life, have not had the means of acquiring a know-

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* General Report of Scotland, vol. iii. p. 429. Perhaps the first sheep-shearing festival, held near the Queensferry in Mid-Lothian, on the 1st of July 1794, by the Society for the Improvement of British Wool, was one of the best ever held, and it laid the foundation of all the others, which have since taken place. The ladies were all dressed in white muslins, with flowers, and various coloured ribbons; and each bore a shepherdess's crook, decorated with taste and fancy. A frigate at anchor, at no great distance, fired a round of twenty-one guns, when his Majesty's health was given. The *amor patriæ* glowed so much in every breast, that no assembly ever exhibited more harmony and happiness than was displayed on that occasion. See Mid-Lothian Report, Appendix.

ledge of various arts and sciences, such as chemistry, natural history, the principles of mechanics, &c. more especially when accompanied with useful models, and experiments.

4. *Theatrical Representations.*—The advantages of theatrical representations have been much questioned. By some, they are considered to be a useful means of inculcating the principles of morality. By others, they are condemned, as the source of great moral mischief. It must be admitted, that they seldom do much good; but if they do no harm, it is ground sufficient for those who are invested with the supreme authority in any state, to encourage and protect them; more especially in great towns, where the people must be amused and occupied, otherwise they are apt to betake themselves to less laudable pastimes. Attendance at theatrical representations, evidently cannot be favourable to *health;* because, to say nothing of the hot and impure atmosphere of the theatre, one is exposed to cold, both in going and returning. Still, to a person in good health, the risk is not so great, as to render it at all necessary, as a *sanatary* regulation, to interdict this classical and popular amusement.

II. *Private Amusements.*—These are, 1. Music; 2. Dancing; 3. Drawing; 4. Chess; 5. Cards; 6. Games of chance; 7. Conversation; and, 8. Reading.

1. *Music.*—Music is a valuable accomplishment, and a competent skill in it, is, on many occasions, of considerable value. It agreeably supplies the want of society, which cannot always be commanded; and it is an introduction to many respectable and valuable acquaintances. Few people dislike music; and the individual who bestows his leisure hours on this innocent amusement, whilst he pleases himself, if he likewise entertains others, will be amply repaid for his labour. Music will also divert him from the gaming-table, and various irregularities, in which he might otherwise have been tempted to indulge. Notwithstanding these advantages however, it must be acknowledged that great musical attainments in young men, too frequently become the source of idle habits, improper companions, neglect of professional duties, and, not unfrequently, of total ruin.

2. *Dancing.*—Under proper limitations, dancing is an excellent amusement, especially in winter, when the heavy atmosphere, and the disinclination to walk in the open air, dispose persons to be melancholy. Moderate dancing has all the advantages of gentle exercise, superadded to the good

effects produced on the mind, by cheerful company, and music. But when carried to excess, or when performed in heated rooms, and in a confined and vitiated atmosphere, it is frequently attended with pernicious consequences, occasioning spitting of blood, consumption of the lungs, and inflammatory disorders. After dancing, cooling drinks, and above all, ice cannot be too much avoided. Exposure to a draught of air, ought likewise to be shunned *.

3. *Drawing.*—The art of drawing, is one of the most desirable, as well as one of the politest accomplishments, that a young person of either sex can possess, and furnishes an agreeable source of occupation and amusement. To travellers it is particularly useful, enabling them to retain any celebrated landscape, any peculiar dress, remarkable character, &c. they may meet with. This art, may also be applied by travellers to higher purposes; such, for example, as making correct drawings of useful mechanical inventions, fine architectural designs, and the like; and in that view, it cannot be too strongly recommended to the attention of those, who wish to benefit their own country by visiting others.

4. *Chess.*—A knowledge of chess was formerly considered to be so important an accomplishment, that it generally made a part of the education of a gentleman. It is now less studied, and games of chance, which are more easily played, and of a livelier description, such as hazard and backgammon, are preferred: whereas chess requires much reflection, and composure.

5. *Cards.*—These have long been the chief instrument of gaming, both for profit and amusement. They were invented, or at least introduced, towards the conclusion of the eleventh century, by Jaquemen Gringonneur, a painter in Paris, for the amusement of that unhappy prince, Charles VI., in his lucid intervals. They were soon imported into England, and, for the benefit of the makers of cards in London, an act of parliament was passed, anno 1463, (3d Edward IV., c. 4), prohibiting the importation of playing-cards. The progress of card-playing was, at first, slow, but it has since been more than sufficiently extended, having been the source of ruin to numbers of unfortunate gamesters, and of serious injury to

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* Willich on Diet and Regimen, p. 450. The late hours are the most pernicious part of the modern system. Formerly, (as has been well observed by an intelligent friend,) balls used to begin at six, and to end at eleven. Now, on the contrary, they begin at eleven, and end at six.

many others, who give up much of their time to it. The attention which card-playing requires, and the anxiety produced, when any considerable sum is at stake, are necessarily prejudicial to health.

6. *Games of Chance.*—A violent passion for games purely of chance, is attended with much mischief, both to the gamesters themselves, and to society :—to the gamesters, by dissipating their fortunes,—by consuming their most precious hours,—by injuring their health,—by making them neglect their most important duties, and thus lowering their moral character ;—to society, by depriving it of the advantages it might have derived from a better application of the time and talents of many of its members *. These games are likewise the means of introducing, among the lower orders, idleness, theft, and debauchery ; and among the higher, have occasioned the sudden desolation and ruin of ancient and respectable families, and an abandonment of every principle of honour and virtue, which has too often ended in suicide. Laws have in vain been enacted to prevent, or to punish this pernicious vice, or at least to place so dangerous a passion under some restraint.

7. *Conversation.*—Instead of cards, or games of chance, why should not meetings be held, expressly for the purpose of rational conversation ? On this subject Dr Beddoes has justly observed, that the object for which people are to be assembled and held together, might be, to discuss the productions of nature, the processes of art, or some important branch of polite literature. The active and the best informed, must provide entertainment for the circle, but the most passive part of the company, would soon forget their listlessness ; and in a zeal for obtaining useful information, would find a new pleasure in existence. By the exclusion of the trifling and malignant topics of common conversation, a better spirit and more happy disposition would be created. It would have been worthy of the pen of our ablest author of inventive biography, to have described the probable effects of such a system of social intercourse upon health, temper and morals. The state of society, as it existed in Geneva, before the troubles in Europe, would afford many traits for this interesting picture †. Those who addict themselves to card-playing, or to games of chance, soon become unfit for any

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* Henry's History of Great Britain, vol. iii. p. 599.

† Hygeia, or Essays Moral and Medical, vol. ii. Essay 8, p. 49.

other species of amusement. So fatal a propensity ought to be checked in the commencement, and surely no means could answer the purpose better, than well-arranged parties for conversation.

8. *Reading.*—But of all the sources of amusement, reading is unquestionably the most valuable. In books will be found, not as in conversation, the hasty effusions of the moment, but reflexions deeply considered, and stated with clearness and perspicuity. The anxious inquirer, when he reads, sits down to converse, with all the most distinguished characters that ancient or modern times have produced. No species of mental labour can be thought of, in which he will not find an instructor and a guide. His mind may be enriched by the accumulated treasures of ages. He may indulge himself, on the one hand, with the pleasantries of Le Sage, of Smollet, of Fielding, of Cervantes, or of Scott; and, on the other, he may probe the depths of the science of morals, for his direction in this world, or may arouse his hopes of a future state of happiness, by the doctrines of religion.

On the whole, innocent and rational amusements are certainly to be recommended. They lighten the cares, sweeten the toils, and smooth the ruggedness of life. It is impossible for man, without injury to his health, to be constantly employed either in mental, or in personal exertions, and that relaxation of mind which amusements furnish, is found to be highly favourable to health. In regard to the aged in particular, Dr Cheyne remarks, that nothing more effectually contributes to the felicity of a green old age, than innocent and entertaining amusements, engaging and light studies, and rational diversions, in cheerful and affectionate society *.

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* Cheyne on the Method of Cure in Diseases of the Body and Mind, p. 308. The celebrated Dr Seed ably remarks, in his sermon, entitled, " The Case of Diversions stated," vol. i. Sermon 8, " That it is impossible to suppose, that the Deity would abridge us of any pleasure, merely as such, when it does not interfere with higher and nobler delights. Such a notion is highly derogatory to his goodness, who, in forming the world, seems, in some things, to have consulted our pleasure only, without any other apparent view."

CONCLUDING REMARKS,

Explaining the Advantages to be derived, from arranging the knowledge already accumulated regarding the most important Arts and Sciences, and reducing the whole within a moderate compass, as exemplified in the Code of Health and Longevity.

During successive ages, many volumes have been written, regarding the various arts and sciences, accounted the most essential for the comfortable existence of the human race; and great additions have been made, from time to time, to the knowledge thus collected; but these additions are scattered through so many works, and published in such a variety of languages, that it would require many years of intense application, to become thoroughly master of all the facts and observations which have been already accumulated, not only regarding any entire art or science, but also with respect to some of its more important branches or subdivisions; many of which, (for instance those of medicine), are so intimately connected, that even the complete knowledge of any one of them, ought not to be considered as sufficient, without some general acquaintance with the rest.

It has often occurred to me, that a plan might be formed, by which human knowledge, regarding at least some particular arts or sciences, might be so distinctly arranged, and condensed within a comparatively narrow compass, as to diminish the necessity of perusing the innumerable volumes now extant on the same subject *. In this way, the mass of society might be better informed, and consequently would be better enabled to enjoy the pleasures of their existence, than they are at present. The system which seems to me best calculated for that purpose, I shall endeavour briefly to explain.

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* The necessity of condensing human knowledge is becoming every day more apparent. We are told, that there are about 350,000 printed volumes in the National Library of Paris, besides from 70 to 80,000 manuscripts. See Pinkerton's Recollections of Paris, vol. i. p. 50.—As there must be a number of works in other languages, not in that library, the total number of volumes now in print, cannot be much short of 500,000; many thousands of which must contain valuable information. There surely cannot be a stronger argument, in favour of condensing knowledge as much as is practicable. Such immense masses of printed paper, can answer no good purpose, and are a heavy load upon literature, and the acquisition of useful knowledge.

Let any art or science be fixed upon; for example, *Physic.* Let it be divided into several branches, as, 1. *Anatomy*, or the construction of the human body; 2. *Physiology*, or a knowledge of the functions which its various parts perform when in health; 3. *Pathology*, or the doctrine of the alterations which its structure and functions undergo when in a state of disease; 4. *Practical Medicine*, or the art of curing diseases by internal remedies; 5. *Surgery*, or the art of remedying disorders or accidents by external application; and, 6. *Hygieine*, or the art of preserving health.

Let us suppose, after this or any other division is adopted, that an intelligent person is employed to draw up an analysis of any branch of the proposed subject; let that analysis be translated, either at the expense of the Government, or of a society established for that purpose, into the principal languages of Europe; and let premiums be given to those, who shall transmit the most valuable communications upon, or will point out the most essential improvements in, the volume to be thus circulated.

Let a collection be made of the most celebrated works, whether ancient or modern, which have been written, either directly or indirectly, regarding the points in question; let these works be thoroughly examined by intelligent men; and let every valuable fact or observation they contain, be extracted out of them.

The whole mass of materials being thus collected, let an able person be appointed, with a committee of assistants, to digest the whole; and thus a work will be formed, capable, undoubtedly, of improvement, by future observation and new discoveries, but which would contain all the material information *hitherto accumulated.* It might thence be accounted, A CODE or standard, for the knowledge of that subject in all time coming, and to which all future publications regarding it would necessarily refer.

Unless some such mode of arranging and condensing human knowledge, be devised and carried into effect, the world must be overwhelmed with a load of literature, without deriving that advantage from it, which might otherwise be obtained *.

As the preservation of health, is one of the most important subjects to which the attention of mankind can possibly be directed, why not begin with that branch of inquiry? The present volume, contains an abstract or analysis, of the principal facts and observations, regarding the preservation of health, hitherto known; yet many errors must necessarily have been fallen into, and many important particulars omitted. The circulation of this work however, not only at home, but in foreign countries, might lead to the correction of many of these errors, and be the means of collecting all the additional information essential for the purpose. Would it not be creditable for any country to have the experiment tried? The expense would not be great, while the advantages resulting from it would be of inestimable value: And if such a plan were to succeed as to one branch, the same system might be extended to another, until every department of knowledge, likely to promote the comfort and happiness of the human race, should be brought within a small compass, and rendered easily accessible.

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* La multiplicité des faits et des écrits devient si grande, qu'il faudra bientot tout reduire aux extraits et aux dictionnaires.—Voltaire, Ecrivains du siecle de Louis XIV.

Were such a measure once completed, *and a perfect specimen produced*, the advantages would appear so manifest, that by the universal concurrence of every enlightened mind, new undertakings of a similar nature would speedily be engaged in, and would be carried on with such zeal and spirit, that no doubt could be entertained of their final accomplishment.

Maxim regarding the advantages of condensing useful knowledge.

IN ITS PRESENT STATE, KNOWLEDGE MAY BE COMPARED TO A SMALL PORTION OF GOLD, DISPERSED THROUGHOUT A GREAT QUANTITY OF ORE. IN THAT RUDE CONDITION, THE STRONGEST MAN CANNOT BEAR ITS WEIGHT, NOR CAN IT BE APPLIED TO ANY USEFUL OBJECT; BUT WERE THE PURE METAL SEPARATED FROM THE DROSS, EVEN A CHILD MIGHT CARRY IT, AND IT WOULD SOON BECOME APPLICABLE TO THE MOST IMPORTANT PURPOSES.

APPENDIX.

APPENDIX.

No. I *.

ON RESPIRATION.

The function of respiration, and the circulation of the blood, are so intimately connected, that unless we understand the nature of the former, it is impossible to comprehend the effects of the latter; and as the " *The discovery of the circulation of the blood,*" belongs to our immortal countryman Harvey, it is highly desirable, that every well-educated inhabitant of Britain, should be thoroughly acquainted with the nature and extent of this discovery.

The key to circulation and respiration is, that in the warm-blooded animal there are *two hearts* united, the one carrying on the circulation of the body, the other that of the lungs. The blood-vessels issuing from the heart to circulate blood, are called *arteries ;* those bringing back to the heart that blood, which having performed its function, is unfit, until exposed to atmospheric air, for the purposes of the system, are called *veins.* The arteries of the one heart communicate, by their extremities, with the veins of the other. The heart *of the lungs* receives into its cavity the blood which has circulated through the body, and which, as it is unfit to preserve life, requires to be purified. By this heart the impure blood is thrown into the lungs, where, being exposed to the air, in the air-cells of those organs, it seems to throw off impurities, and to receive oxygen or vital air, so as to become fit for the purposes of life ; it then passes into the heart *of the body* by the blood-vessels, which collect it from the air-cells in the lungs. By this heart, it is passed on to every portion of the system, being the source of life and function ; after which it is again collected, by the extreme ends of the veins, and carried into the heart of the lungs, when the same process is repeated.

The uses of respiration may now be made manifest. It is found, that so long as *irritability* remains uninjured, the dark-coloured impure blood, which is thrown into the lungs by the right heart, or heart of the lungs, is refused admission into the vessels which are prepared to carry *purified* blood into the left heart, or heart of the body. If therefore, for the shortest period, the breathing cease, the circulation of the blood is interrupted. The first effect then of suspended respiration is, the engorgement of the lungs; the right heart soon partakes of this state, and has its action stopped; while the left heart receiving no supply of blood, has no longer any thing to act upon. As the continuance of life is wholly dependent on the action of the heart, such a state as this, cannot last, with any safety, the heart soon becoming incapable of renewing its action. And although, no doubt, resuscitation after suffocation is possible in some individuals longer than in others, and in the young, longer than in the aged, yet in all, a very few minutes of suspended respiration renders death inevitable.

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* No. 1, 2, and 3 of the Appendix have been drawn up for this work by an intelligent medical friend.

The blood, then, of a dark red colour, and in a state quite unfit to support life, is thrown into the lungs by the right side of the heart. In these organs, this blood throws off the impurities it had collected in its circulation through the body, and being changed in its appearance, to a fine vermilion hue, is rendered fit for all the purposes of life, and is passed on, to the left side of the heart, by which it is circulated to nourish the body.

The air which is expired, differs materially from that which is inhaled by the lungs. When drawn from the surrounding atmosphere, it may contain about one part of carbonic acid gas in a hundred. When thrown off by the lungs, it is charged with eight *per cent.* of this gas. It appears, that air charged with ten *per cent.* of carbonic acid, is no longer fit to preserve life in a warm-blooded animal. It is calculated, that man consumes, on an average, 45,000 cubic feet of oxygen in the 24 hours, and that he throws off 40,000 cubic feet of carbonic acid, containing about 10 ounces of charcoal. A portion of air, equal to about $\frac{1}{80}$ of its bulk, disappears in respiration. A quantity of aqueous vapour is also thrown off by the lungs. The products of respiration vary at different periods of the day, and are influenced by the state of health, and by the diet of the individual. Although these facts are in some particulars disputed, yet generally speaking they are sufficiently established; and, at any rate, what has now been said will serve our present object.

Much ingenuity has been displayed by chemists, and physiologists of high character, in explanations of what is supposed to take place, between the blood and air within the lungs; for although the membranes of the pulmonary vessels intervene between the air and blood, yet it is evident, that these substances must act freely on each other. It would be out of place to engage here in such an inquiry, as the deep interest of this subject merits. It will suffice to observe, that the various theories seem to have merged in two.

(1.) It is supposed that the impure blood which is thrown into the lungs by the right side of the heart, is loaded with carbon, which being discharged into the air-cells of these organs by the blood-vessels, unites with the oxygen of the air, and forms the carbonic acid which is exhaled in respiration. This theory has been well supported by Messrs Allen and Pepys. The principal objection to it in our mind is, that it throws no light on the subject of animal heat, which, on all hands, is regarded as having its source, to a considerable extent, in the formation of carbonic acid within the body. Indeed, it is inconceivable, that the heat which is, during health, so uniform over the whole body, should be generated entirely in the chest. Were that the case, the extreme parts of the body would be always some degrees below the standard heat of the lungs, and the occasional partial increase of heat, beyond the standard heat of the animal, which disease or other causes produce, in portions of the system, would be wholly inexplicable.

(2.) These objections, do not hold good against the theory which has been supported by Dr Edwards, namely, That the oxygen of the air is absorbed within the lungs, and added to the blood which is passing on to the left side of the heart; the impure blood, at the same time, throwing off the carbonic acid which had been formed in the course of the circulation, in every part of the system. The oxygen which has been thus taken up in the lungs, circulates with the arterial blood, and, as it passes on, unites with the carbon of the system, forming carbonic acid; while the blood, having thus lost its arterial character, is returned to the centre of circulation, by the veins, again to be exposed to the purifying operation of the lungs. This process, the source of animal heat, and one of the agents in effecting the constant change which is always in progress in the component parts of our system, takes place in the minute and capillary branches of the arterial and venous systems. For the farther study of this curious and important subject, we must refer the reader to the very interesting researches of the chemists and physiologists who have lately engaged in the inquiry *.

No. II.

ON THE WEIGHT AND PRESSURE OF THE ATMOSPHERE.

According to the most accurate experiments, the weight of an hundred cubic inches of pure dry air, at the level of the sea, is 30.5 grains; and its pressure, on the same level, is equal to 15 lbs. on the square inch, being capable of supporting 34 feet in height of water, and a column of about 30 inches of mercury. The vertical height of the atmosphere, is supposed to be about 45 miles from the surface of the sea. Its density and weight decrease, in proportion to its elevation from the level of the sea. Its height, and consequently its weight, are influenced by meteoric and perhaps by electric changes.

No. III.

ON THE NERVOUS SYSTEM.

A general knowledge of anatomy is almost indispensable to the completion of a liberal education. Not that the unprofessional stu-

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* Vide Bostock's Physiology; Philip on Vital Functions; Williams on Animal Heat; Crawford on Animal Heat; Ellis' Enquiry; Turner's Chemistry; Trans. of the Medico-Chirurgical Society, Edinburgh, vol. ii; Phil. Transactions, &c.

dent is to occupy himself with the necessarily disgusting details of practical anatomy; but every well-educated person should endeavour to acquire such a knowledge of the structure of his own frame, as may enable him to comprehend the agencies by which animal life is carried on, and to form some idea of the various processes which are constantly in progress within him.

In the body of the work, we have thrown out some general observations on the digestive organs, and in a preceding note we have given a cursory sketch of respiration and circulation. It only remains that we should now endeavour to direct the reader's attention to what may be considered as the most important and interesting portion of anatomy, viz. the nervous system, or that wonderful apparatus by which the mental faculties are, as it were, united with the bodily powers.

The nerves are the means by which life and all its operations are carried on in each particular part of the body, with the exception of the brain, which is in fact the source of nervous energy; and there is no subject which has excited more interest among anatomists and physiologists than the nerves,—neither is there any portion of physiology which has made greater progress in modern times. Nor is it unworthy of remark, that we owe some of the most important discoveries on this subject, to our countryman Sir Charles Bell.

In order to explain the nature and influence of the nervous system, we shall take, by way of illustration, one of the muscles which has a simple operation to perform. The muscles are those fleshy substances which move when the limbs are in action. Thus, in the fleshy part of the arm there is a large muscle, originating in the bones forming the shoulder joint, which passes down the arm anteriorly, and which is inserted into the bones of the fore-arm below the elbow-joint. This muscle in its action, bends the fore-arm.

If an individual wish to act upon this muscle, he communicates his desire to it through the nerves which pass from the brain to the muscle. This of course is a simple operation, but then it is necessary for him to know to what extent he has acted on the muscle. The eye no doubt might assist him, but the eye has other duties to perform, and our Divine Artificer has left nothing to chance. There is, therefore, not only a nerve which conveys the volition to the muscle, but there is a nerve which intimates to the brain that the object has been attained. The nerves of *volition* however, and those of *sensation*, do not differ in appearance, and being bound up in the same sheath, cannot be distinguished from each other; but Sir Charles Bell has not only demonstrated their existence, but proved that they communicate with the brain at different points. To illustrate the nature of this operation, let us suppose that an individual had unconsciously touched a substance so much heated as to be capable of burning him; if the muscles acted without communication with the brain, he would withdraw his hand the instant he touched the heated substance, and so escape injury; but as the mind must be communicated with before the muscles can act, the hand is not moved instantaneously, and is consequently scorched.

In like manner, every part of the body, however simple its function, has a system of nerves attached to it. But there are many parts which have a variety of functions to perform, and here also we find nerves with distinct origins for each particular duty. Thus, the tongue, —which is the organ of taste,—which is essential in speech,—which is necessary in the act of swallowing, and which has a very important function to perform in the mastication of food, is supplied, for the due performance of each of those several functions, with distinct nerves communicating directly with the brain. But then, as the power of acting in certain of these operations would be useless, if uncombined with action in other parts, the tongue must not only receive direct communication from the brain, but must be united with the other organs with which in its functions it is connected. The nerve which gives it the power of speech, therefore, is not only connected with the lungs, but with all the muscles which act on those organs. That which enables it to assist in deglutition, is connected with the nerve which supplies the gullet and the stomach; and that which enables it to assist in turning the morsel of food in the mouth, is connected with that which supplies nervous agency to the muscles of the cheek.

This cursory view of the nervous agency which centres in the tongue, will be sufficient, not only to show the importance of the whole system and its complication, but the intimate communication which is kept up between nerves conveying different powers, and having totally different uses. Generally, no doubt, the communication between nerves is carried on through the brain; but this in many situations would be exceedingly inconvenient; and, therefore, in involuntary and instinctive action, the intervention of the brain seems not to be resorted to.

The first great division of the nerves is the cerebral nerves, or those proceeding directly from the brain; which may be subdivided into the nerves of sensation and nerves of action; the first, announcing, as it were, to the brain what is going forward in remote parts; the second, communicating what may be called the commands of the brain to the organs of action.

But there are certain functions which go on while life and health remain, without the necessity of communicating with the brain,—some indeed over which the sentient portion of the brain has no controul. Respiration, for instance, although capable of being acted upon by the brain, is in its usual state uninfluenced by the mind, and accordingly it goes on as regularly during sleep as when we are awake. But when awake, we have, to a certain extent, controul over it, and accordingly can avail ourselves of it in some of the most important intellectual and corporeal operations; such, for example, as in communicating our ideas by speech, and in affording, by expanding the chest, an additional purchase to the muscles and upper extremities.

The circulation of the blood again is wholly beyond the controul of volition, although no doubt influenced by the passions. This seems to be the most inexplicable portion of the nervous system, so much so indeed, that some physiologists have denied the existence of nervous agency in the functional actions of the heart. Even were we capable of solving the difficulties connected with this portion of the physiology of the nerves, this would not be the place for the attempt. It will suffice to observe, that there is a nervous system common to the tribes of animals which have little or no brain, and to that higher class to which man belongs. This has been called the *sympathetic* system of nerves. And in man it seems to have its source in a number of small glandular-looking bodies, which are seated in the abdomen. From these stretch out nerves in all directions communicating with branches from the spinal marrow, and with nerves proceeding more directly from the brain, and sending branches to all the viscera of the body, viz. the heart, lungs, liver, salivary glands, intestinal canal, kidneys, &c.

There are thus three great systems of nerves; the first, the nerves of sensation, and volition, communicating between various parts of the body and the brain; the second, the respiratory system of Sir C. Bell, which is, in point of fact, involuntary, but which is capable of being acted upon by the mind, by nervous intercommunications; and the third, the nervous system of the body, by which the involuntary functions are performed, and which is wholly beyond the controul of the mind, although apparently influenced by its condition under extraordinary circumstances of excitement, or while the individual is under the influence of disease.

This sketch, while it brings into view by far the most interesting portion of physiology, will also be sufficient to show how much health depends on circumstances over which we have no controul; at the same time, it explains the not uncommon occurrence, that great moral courage and corporeal energy, may co-exist with weakly digestive powers. Good health seems to consist in the maintenance of a due balance between the nervous systems, and there can be little doubt that longevity will mainly depend on the non-interference of the corporeal with the mental system, in so far as such disjunction is practicable. It should therefore, be an object with every individual, by the due regulation of that portion of his nervous system which is unquestionably under his own controul, to prevent the disturbance which every one is conscious the brain, under excitement, produces in the involuntary nervous system.

No. IV.

EXTRACTS FROM WILSON'S TRAVELS, PRINTED ANN. 1820, ON THE BENEFICIAL EFFECTS OF COUNTRY AIR, TO THE INHABITANTS OF TOWNS.

" The countenances of the peasantry, (in the neighbourhood of Florence), prove the advantages of their situation. A busy cheerfulness lightens their eyes, which, added to the general beauty of their features, makes them fit inhabitants for such a paradise. The town people also partake of the blessings of the climate, on account of the very moderate extent of the city. They leave the study, the shop, or the laboratory, and are soon in a free and unconfined atmosphere, which refreshes the body and the mind, and invigorates both to resume their former exertions with renewed activity. Not like the artizan and mechanic, plunged amidst the struggling clouds of smoke which obscure London, extend their influence over all its environs, and follow the steps of its poor inhabitants, when a Sabbath or other holiday, sends them in search of a purer sky and brighter prospects. The Londoner is worn out with fatigue, or the festive hours are expired, before he reaches the skirts of the metropolitan gloom; and he is forced by duty and necessity to return home, into the very centre of its density, before he has got rid of smoke and city smells. It may be said, that as long as we have air to breathe, and light to guide our movements, it little signifies whether the sky be clear, or the sun half shorn of his beams; but I verily believe, that the degree of purity in which we enjoy the great luminary, and the blue vault of heaven, heightens or diminishes the brilliancy of our pleasures, and gives a lively or sorrowful hue to our thoughts and reflexions, just as much as a rich or pale tint to the peach or nectarine, which blush as the rays salute them."

The above remarks on air, and its beneficial effects on the inhabitants of towns, are equally lively and just. Indeed, when the imperious necessity for constantly repeated inspiration and expiration is considered, and the very short time, that any of the more complicated animals can exist, if deprived of air, it would appear, that a constant supply of that fluid, in as great purity as possible, is more immediately requisite for the support of life, *than any other external circumstance whatever.* The very spirit of vitality itself, seems, through the medium of the lungs, to be derived from the atmosphere.

No. V.

ON THE LONGEVITY OF THE HUMAN SPECIES IN REMOTE AND EARLY AGES, AND REFLECTIONS ON THE SHORTNESS OF HUMAN LIFE IN MODERN TIMES.

It is a question which has been the subject of much discussion, whether the primitive race of men surpassed the present, in point of health, strength, and longevity? And to what causes such a circumstance ought to be attributed? It is well known, that, since the days of Moses *, there has been, in these respects, no great variation, for he states, that from seventy to eighty years was then the usual period of human life, which differs not from the present extent of its duration; but in the same volume in which that truth is recorded, we read of a number of persons who lived much longer.

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* The ninetieth Psalm is entitled, "A prayer of Moses, the man of God."—In the 10th verse, it is said, "The days of our years are threescore years and ten; and if, by reason of strength, they be fourscore years, yet is their strength labour and sorrow; for it is soon cut off, and we fly away."

Some have contended, that the years ascribed to the ancient patriarchs were not solar, but lunar years, and consisting of only 30, instead of 365 days each; in which case, there would be nothing improbable in the duration of their lives, for even Methuselah, instead of 967, would only have lived about 80 solar years. Much ingenious speculation and conjecture have been wasted on this subject. Without however, pretending to explain what can only be accounted for by conjecture, or by a reference to omnipotent power, we shall proceed to observe, that whatever might be the length of the life of man in the patriarchal ages, yet we have no reason to repine at its more limited duration in these times.

That man should wish to preserve life, whilst he enjoys health and strength, is natural. Indeed, the formidable circumstances which attend death, are, in the present situation of mankind, absolutely requisite to the proper government of the world. The terrors of death are, in fact, the great guardians of life: they excite, in every individual, that desire of self-preservation, which is nature's first law: they reconcile him to the distresses of life: they prompt him to undergo its useful and necessary labours with alacrity; and they restrain him from many of those evil courses by which his safety would be endangered. If death were not dreaded and abhorred as it is by men; if capital punishments had no influence in deterring offenders, public order could not be preserved *.

In advanced years, we have less enjoyment of almost every description, than when in the vigour of youth: and, after having tried what are commonly considered to be the pleasures of life, and finding them all vain and unsubstantial, there is the less reluctance to part with them.

Not only have we less personal enjoyment ourselves, but we become a burden upon our friends. We are unable to provide for our own subsistence, and others must labour for that purpose. We become fretful and impatient; and the mind often grows more infirm than the body.

Nor is this all. If we live to a great age, most of the friends of our youth have predeceased us, and we are unwilling, or unable, to form new connections. The manners, the ideas, perhaps the very language of our youth, have undergone material alterations, and we are disinclined to go with the tide †. In short, we become solitary, singular, and burdensome beings, in the midst of a crowd, bustling about other matters, and indifferent about our complaints ‡.

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* Blair's Sermons, vol. ii. p. 218.

† Alexander (Jerome), a cardinal, made his own epitaph, which shews that he was not displeased with his destiny. It consists of two Greek verses, which signify that he died willingly, because he ceased to be witness of several things, the sight of which was more insupportable than death. Such would be the disposition of all men, if reflection, if reason, if good sense, were capable of surmounting the mechanical impressions which bind us to life. See Bayle's Dict. *voce* Alexander (Jerome). Buchanan also expressed himself tired of life before he quitted it.

‡ The Author collected several instances of great longevity in Scotland, the particulars of which are printed in the Code of Health and Longevity, vol. ii.

The best consolation certainly is, when a person can review a long and well spent life, and can part with it without reluctance, in the hope of enjoying, in another and a better world, greater happiness than can be expected in this imperfect state of existence.

No. VI.

CIRCUMSTANCES CONNECTED WITH THE PERSON OF THE INDIVIDUAL, FAVOURABLE OR ADVERSE TO HEALTH AND LONGEVITY [*].

The circumstances connected with *the person* of the individual which have a material tendency to promote health and longevity, and which, at the same time, are almost totally independent of any care or exertion on his part, are,—1. Parentage; 2. Perfect birth; 3. Gradual growth; 4. Natural constitution; 5. Form; 6. Sex; and, 7. The efforts of nature to renew the distinctions of youth.

Each of these particulars it will be proper separately to consider.

1. *Parentage.*—There is no circumstance which seems more surely to promise health and probable longevity to any individual, than his being descended from healthy and long-lived ancestors [†]. It is well known, that children have a predisposition to suffer from the maladies of their parents [‡]; and, on the same principle, they are well entitled

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1st edition. The state to which some of these individuals were reduced, exhibits extreme old age in any thing but an enviable point of view.

[*] Every aged person thinks his or her own peculiar habits the cause of long life; thus, Mrs ——— who lived to be past 90 years of age, ascribed her preservation to a practice she had of shutting herself up in the house, from 1st October till 1st April. A pauper lives to be 115 years old, and her longevity is ascribed to her indifference to all weathers. We find one gentleman at 96 years of age, eating of every dish that comes in his way; making a dinner of roast pig with cracklings, cold beef and sallad, peas, currant tart, and cheese and cucumber; with a pint of small beer, half a pint of ale, and five glasses of wine; while another veteran of an equally good life, limits himself to one dish, and takes a measured quantity of sherry negus.

[†] This doctrine, says Camper, is of great antiquity; for both Hippocrates and Pliny have remarked, that though there are some exceptions, owing to the child suffering in the womb of the mother, yet it is a general rule, that healthy parents will have healthy children.

[‡] I am assured, by a very intelligent *accoucheur*, that diseases are often communicated from the parents, which destroy the embryo *in utero*, or prove fatal soon after birth. There are some too melancholy instances of this, in which the vices of the parents have become the bane of their posterity; and it would appear that diseases remain latent in the father, yet become active in his offspring. There is no doubt, the physician above alluded to observes, that parents communicate to their children a predisposition to certain diseases. Many suppose, that this hereditary predisposition may be obliterated by suitable measures, but the proofs of this are not yet quite satisfactory. Whatever promotes the general health of the individual, must tend to remove any weakness or facility of derangement, depending on original corporeal structure, and perhaps nothing else can be done. Before experiments on this subject could afford any satisfactory evidence, they must be varied, and so multiplied, that, perhaps, no single

to enjoy the perfections of those to whom they owe their birth. Indeed, in the course of the numerous inquiries which we have made regarding this branch of the subject, it has frequently appeared, though the rule is far from being universal, that wherever any individual was distinguished for longevity, his progenitors, either on the paternal or maternal side, had been long lived.

Let it not be supposed however, that long-lived parents secure long life to their offspring. We see every day, how much, in this respect, persons, even in the same family, differ from each other; and how often the brothers and sisters of those who have lived upwards of a century, have died, some in infancy, some at manhood, and some at other periods of life.

Indeed, the result of the most extensive and minute inquiry hitherto instituted regarding old people, namely, the reports transmitted to the author from Greenwich and Kilmainham hospitals, and from the workhouses in London and the neighbourhood, shows to what extent the rule may be justly carried *. The number of individuals, beyond 80, mentioned in these reports, amounts to no fewer than 598; of these 303 affirmed that they were descended from long-lived ancestors, but the remaining 295 either knew nothing at all about their progenitors, or declared, that they had not been remarkable for long lives. A variety of other circumstances therefore, more especially those which are afterwards enumerated, as perfect birth, gradual growth, &c. must, in the ordinary case, be combined with long life in the parents.

That long-lived parents should have children likely to live long, is not to be wondered at. The same general rule applies to vegetable as well as to animal life. Although the seed of every tree, or plant, will produce a tree or plant of the same sort, and possessed of equal beauty and duration, yet at least two points must be attended to; 1. That the seed must be sound and wholesome; and, 2. That it be deposited in a proper soil.

1. The seed must be sound and wholesome. Hence, in animal life, the advantage of being descended from ancestors, who have no taint in their constitution likely to affect the health of their progeny †.

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individual could complete them. He adds, " I have some such experiments at present going forward; but even although the result should prove such as I hope, I could not rely implicitly on them as deciding the question."

Doctor Brown rejects the idea of hereditary taints, yet seems to admit that a certain *texture of stamina* is favourable to certain forms of disease. Brown's Works, vol. iii. p. 255. There can be little doubt that chronic diseases depend much on the original conformation, or rather mal-conformation of certain parts or organs; and that the son should resemble his parent in these respects, is as natural as that he should have similar features.

* See Code of Longevity. vol. ii. Appendix, Nos. 7, 8.

† Bacon well observes, that the immediate condition of the parents, as well of the father as of the mother, (to which there must be added the condition of the mother during her state of pregnancy), availeth much; and the German authors maintain, that the condition of the parents *in coitu*, will affect their offspring.

It is proper to remark however, that persons with a scrofulous taint often live

By some authors, the existence of hereditary diseases is totally disbelieved; though they acknowledge that a predisposition to a particular disease may exist. But daily experience must convince every man of common observation, that there are many maladies, a disposition to which children will inherit from the parents, even where endeavours have not been wanting to check that tendency *. There are some instances indeed, where by great care the gout, to which the father has been a martyr, has not affected the son; but unless the same care has been continued, the grandson will probably suffer from the disease.

It is also said, that the parent must be afflicted with the disease, before the child is born, or at least, that there must have been a previous taint in his constitution. Thus, if no gouty taint had existed in the family, and if the parent was not affected by it, *till he had reached forty years of age*, on this hypothesis, all his children born previous to that period would be exempted from it, whilst all those born afterwards could hardly escape a disposition to that malady.

2. In all animals much seems to depend upon the healthy state of the mother. Indeed, it is confirmed by experience, that the state of the child's health and constitution, depends much more on the condition of the mother than on that of the father. A weakly father may often beget a robust child, provided the mother be sound and vigorous. On the other hand, the strongest man will rarely obtain a lively healthy child, from a mother who is weak and sickly †.

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to a great age. An intelligent correspondent knew a person whose children had almost all died before their parent, of that complaint, but who yet lived himself in good health, until he was upwards of 80 years of age. If a person with a scrofulous taint, pass in safety the meridian of life, he often attains old age, or at least seldom falls a victim to that complaint.

* Dr John Gregory has recommended an inquiry into the history of the various circumstances in parents which have an influence on conception and the constitution and characters of their children.—See Lectures on the Duties of a Physician, p. 102. On this subject a curious case, recorded in the Annals of Medicine for 1801, has been recommended to my attention. At the age of 24, the Marquis Anthony Julius Brignole was first seized with epileptic fits. Previous to this period, his lady had born him one son; at that time she was pregnant with a second, when unfortunately she saw him under his first attack. When with child of a third, the same unlucky occurrence took place. A fourth son and two daughters were begotten after the father was cured. The eldest son never had any epileptic symptom; the second son suffered much from epilepsy; and the third son, after having borne many attacks, died in an epileptic paroxysm. Neither the fourth son nor either of the daughters ever had any epileptic symptoms. May we not (says Dr Batt of Genoa, who reports the case), from these facts reasonably infer, that the epilepsy in these two children owed its rise solely to the agitation of the mother, independent of the father's ailing? and that it was properly connate, and neither congenerate nor hereditary?

† Hufeland, vol. ii. p. 123 The celebrated Bacon also states it as a general position, that creatures, such as birds, which partake more of the substance of their mother than of their father, are the longest lived; and that those which have the longest time of bearing in the womb, are consequently longer lived. He adds, "that even among men, (a fact which we have noted in some), those that resemble the mothers most, are longest lived. And so are the children of

There is reason to believe that the outward shape, at least of the male, depends more upon the father than the mother, but that the talents and the structure of the mind are derived from the mother *. The first point is ascertained in this manner: If any person will compare a father of sixty and a son of thirty, he may possibly see very little resemblance; but if he will retain in his mind, the image of the father at sixty, and compare it with the appearance of the son, when he approaches to that age, the similarity, as regards looks, voice, habits, &c. will be found most striking; consequently the original frames must have been, from the beginning, extremely similar. As to the second point, a clever woman has seldom children remarkable for deficiency of parts; nay, the abilities of many families may be traced to one distinguished female who introduced talents into it, which have descended, not only to her children, but have become hereditary in her posterity †.

In considering how much the healthiness of children depends upon the condition of their parents, it has been suggested, that diseased persons should be prohibited from marrying, as likely to produce nothing but disease, deformity, and political mischief ‡. This however, would be going much too far. Yet nothing surely can be better founded, than strongly to recommend to those who are likely to inherit any family disease, to be peculiarly circumspect in their manner of living, and to guard against its attacks, at least at an early period of their lives, by attention to air, to exercise, and to diet. It is certain that family diseases have often, by proper care, been kept off for at least one generation §; and there is some reason to believe, that by persisting in the same course, and forming judicious connubial connections, such diseases may at length be wholly eradicated ||.

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old men begotten upon young wives, if the fathers be not diseased." It is said by breeders, that an aged begets only males on a young female; and that females only are produced when the case is reversed.

* There are, of course, many exceptions to this rule, but the general principle will, I think, be found correct.

† This observation is verified in regard to two of the most distinguished families for talents in the united kingdom. The abilities and the eloquence of that branch of the Pitt family, who were created Earls of Chatham and Lords Camelford, was owing to a fortunate connection they made with a Miss Innes of Redhall in the Highlands of Scotland. The talents of the family of Dundas of Arniston, have also been attributed to the marriage of one of their ancestors to a Miss Sinclair of the family of Stevenson, in East Lothian.

‡ See Hufeland, vol. ii. p. 128, and Domestic Medicine, p. 8.

§ A respectable physician (Dr Wright) informed me, that the *Lepra Græcorum* will sometimes pass over one generation, but will assuredly break out the next.

|| Buchan's Domestic Medicine, 18th edition, p. 8. In another part of his work, that intelligent author justly remarks, that the unhealthiness of parents must be a great source of the diseases of their children; and that it would be as reasonable to expect a rich crop from a barren soil, as that strong and healthy children, without great care from their birth till they reach maturity, should be born of parents whose constitutions have been worn out with intemperance or disease. A delicate female, brought up within doors, and an utter stranger to exercise and open air, who lives on tea and other slops, may bring a child into

2. *Perfect Birth.*—It is well known, that nine calendar months are the proper period during which the fœtus ought to remain in the womb of the mother * ; and such is the beautiful arrangement which nature has made for its protection and nourishment, that should it be sooner expelled, in consequence of any accidental circumstance, no possible care or attention after birth, can well compensate for the advantages of which it has thus been deprived † ; though great care, or the circumstance of having healthy parents, will go far in remedying even this heavy misfortune.

It is certainly of great importance to the health of the child, and the future strength of the individual, that the fœtus should complete nine months in the mother's womb. As to the notion, that children of eight months will not thrive, when those of seven months will, modern experience has proved it to be ill founded ‡. It is now perfectly ascertained, that, except under very peculiar circumstances indeed, the longer the fœtus remains *in utero*, after the seventh month, the stronger and healthier it proves § ; so that a child born at the end of the eighth month, has a better chance of living than one born before that time. It is incredible, at the same time, what variety, in degree of *vitality*, is observed in the fœtus. In some, the slightest circumstance destroys life, whereas in others, the vital principle is with the utmost difficulty extinguished.

In regard to the question, whether a fœtus of seven months old may become a person distinguished for health and longevity, there is a living witness that such a circumstance may take place; for James Donald, an old man, residing near Dumbarton in Scotland, aged about one hundred years, was born, it is said, in the seventh month; and his late Majesty, George III, who died in his 82d year, is also believed to have been born in the seventh month.

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the world, but it is hardly fit to live. If to the delicacy of mothers, we add the irregular lives of fathers, we shall see farther cause to believe, that children are often hurt by the constitution of their parents. A course of vice must spoil the best constitution; and when disease is once contracted and rivetted in the habit, it is in a manner entailed on posterity.

* There is a good note in Hargrave's edition of Coke's Littleton, on this subject, (vol. iii. p. 188, 123. b. note 190.) It concludes with the following opinions of the celebrated John Hunter. 1. The usual period of gestation is nine calendar months, but there is very commonly a difference of one, two, or three weeks. 2. A child may be born alive at any time from three months, but we see none born with powers of coming to manhood, or of being reared, before seven calendar months, or near that time. The usual period is nine calendar months, or 270 days, and thence to 40 weeks or 280 days.

† Hippocrates considers perfect birth so essential, that, in his book *De Septimestri Partu,* he contends, that children born in the seventh month seldom live long.

‡ Lord Bacon goes so far as to say, that a birth at the eighth month, is not only not long lived, but not likely to live. He adds, that winter births are accounted the longest lived, but this is probably too refined.

§ In some particular habits, if the fœtus remains beyond the eighth month *in utero,* it dies for want of nourishment, or some other defect. Under such circumstances, premature labour has been brought on with the happiest effect.

In the human race, one child at a birth is all that in the ordinary case is produced; but twin births are not unfrequent. When the number exceeds two, they seldom survive, and never attain great age. With twins, it is otherwise, for there are many instances of longevity in one or both. There were lately living in Montrose, twin brothers, upwards of eighty years of age *. This is however, the only instance of such a circumstance that has reached our knowledge; and it is believed that no example can be produced of any case, where a greater number than twins have been distinguished for long life.

3. *Gradual Growth.*—Lord Bacon seems to have been the first, who, by a careful and minute inquiry into the duration of the lives, both of man and of a number of different animals, established the principle, that longevity is in proportion to the slowness with which the animal reaches maturity. This indeed, is the case in the vegetable as well as the animal kingdom. It is a sign, he observes, that nature finishes her periods in larger circles.

It is owing to this circumstance, that people in cold countries, and whose growth is not accelerated by enriching food, or early debauchery, live much longer than the natives of warm countries, who are reared as it were in a hot-bed, and who are full grown men and women at twelve years of age †.

The gradual expansion of the mental faculties, is almost as important as the growth of the person. It rarely happens that premature genius lasts long. Such prodigies seldom survive the fiftieth year of their life, and, in general, they perish at a much earlier period ‡.

One reason why the duration of human life is, on the whole, lessened, in periods of civilization and industry, perhaps is, that in that state of society, men of all descriptions are brought forward too rapidly. The children of the poor are compelled to work, before their strength is sufficiently developed, which injures their growth, and lays the foundation of future diseases. The children of the opulent, on the other hand, have their education unnecessarily accelerated; and they enter into the world before they are fit to guard against its snares. It is certainly necessary, that a foundation be laid, in early youth, for the most essential branches of education, as grammar, writing, and arithmetic; and that some knowledge should be acquired of the learned languages, as well as of the most important languages of modern times. If a good foundation however, be laid, and if there be any turn or disposition for the acquisition of learning, it is astonishing how soon a youth of genius will acquire all the knowledge essential for the ordinary situations of life. But if he be brought forward too early, he gets into company beyond his years, and must, to a certain extent, follow their example; he acquires habits of dissipation; the growth, both of his body and mind, is unfortunately accelerated, and he lays a foundation either for a sickly and miserable old age, or perhaps for a premature death.

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* See Code of Longevity, vol. ii. Appendix, p. 62.

† Buffon makes the difference as to the time of reaching puberty, only two years, between the southern and northern parts of Europe, vol. ii. p. 411. But the difference is still greater, when compared with Africa, or the warm climates of Asia and America. It was owing to their avoiding early dissipation, according to Hufeland, that the great size and strength of the ancient Germans is to be attributed; and it is to the same causes, that the great duration of human life, in many of the mountainous and insular districts of Scotland, is in some degree to be ascribed. Buffon remarks, (vol. ii. p. 411), that children brought up in the country, or whose parents are poor, require two or three years longer to arrive at puberty, than the children of more opulent parents, because their food is not only bad, but given too sparingly. This very circumstance however, by checking too rapid a growth, may be of service to them, or at least may promote their longevity.

‡ The most extraordinary instance of early maturity recorded in history, is that of Louis the Second, King of Hungary, who, it is said, was born so long before the natural time, that he had no skin; in his second year he was crowned; in his tenth year he succeeded; in his fourteenth year he had a complete beard; in his fifteenth he married; in his eighteenth he had grey hairs, and in his twentieth he died. See Hufeland on Animal Life. As to weakly children, who are said *to be too wise to live long,* they get forward in point of talent, because they enjoy more of the company and conversation of their parents, from their inability to partake of the sports and exercises suitable to their years.

According to Buffon, though man arrives at his highest stature, when he reaches the sixteenth or eighteenth year of his age, yet his body is not completely unfolded, in regard to size, before he has attained thirty. A man therefore, who grows till thirty, ought to live till ninety or a hundred, or three times the period of his growth *.

Lord Bacon, on the other hand, considers it to be a rule of nature, that animals, in general, should live eight times the number of years which is requisite to the attainment of their perfect growth; and, on this idea, as man attains to full maturity at twenty years, his life ought to be extended to one hundred and sixty years.

But Buffon justly remarks †, that persons of either sex, who are slow of arriving at their full growth, should outlive those who advance more rapidly to that point; because, in the latter case, the bones, cartilages, and fibres, are later in arriving at that degree of rigidity which precedes their destruction.

4. *Natural Constitution.*—In some constitutions, all distempers are mild and gentle, whilst in others they are violent, and cured with difficulty. One person is liable to catch any contagious disorder, whilst another may visit, without hazard, houses infected with the plague

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* Buffon, vol. ii. p. 478.

† Buffon, vol. ii. p. 478. The following circumstance tends to prove the dangers of premature growth. The celebrated Berkely, Bishop of Cloyne, took a strange fancy to know, whether it was not in the power of art to increase the human stature; and an unhappy orphan called *Magrath*, appeared to him a fit subject for the experiment. It is not said what process he pursued for the purpose, but it is certain that the youth became seven feet high in his sixteenth year. He was carried through various parts of Europe for the last years of his life, and exhibited *as the prodigious Irish Giant.* But so disproportioned were his organs, that he contracted an universal imbecility both of body and mind, and died of old age at twenty. See Watkinson's Philosophical Survey of Ireland, one volume octavo, printed at London, anno 1777, p. 187.

or other contagious malady. One is inclined to get fat and unwieldy, even at an early age, whilst others remain light and active, even to the close of life. In some, there seems to be a certain bodily and mental disposition to longevity; in consequence of which, many individuals, frequently under the most unfavourable circumstances and in the most unwholesome climates, have attained to a great and happy age; whilst in others, the most salubrious country air, a district abounding with aged inhabitants, a strict adherence to the best rules of diet, a regular course of recreation and exercise, and, when necessary, the aid of the most skilful physicians—even all these advantages combined, are not sufficient to insure a long and healthy life *.

It is said, that the great Boerhaave learned the characteristic signs of perfect health, from dealers in slaves, who, from long practice, necessarily become particularly well acquainted with the doctrine of signs or symptoms †. The following are the signs, which, according to medical authors, denote a good natural constitution, and prognosticate long life.

1. A sound stomach and organs of digestion; without which, it is impossible to enjoy good health, or to attain to great age. Lord Bacon justly calls the stomach "*the father of the family*;" for if it goes wrong, the whole body suffers. It is the principal and most important organ for the restoration of our nature; and, indeed, when our stomach is in good order, the passions, which are so often the causes of disease, have a less destructive influence on our bodies ‡. 2. A well-organized chest and organs of respiration; breathing being the most necessary of the vital operations. 3. A heart not too irritable. A stout uniform pulse accordingly, is a strong sign of long life; whereas a pulse, either always quick, or the action of which is increased by every trifling agitation of the mind, or other circumstances, can hardly be accompanied by long life. 4. A good temperament. The best is the sanguine tempered with a little of the phlegmatic. This produces a serene cheerful mind, moderate passions, undaunted courage, and that state of mind, which is the most fitted for longevity. 5. A strong natural power of restoration and healing; by means of which the losses we daily and hourly sustain, are not only repaired, but repaired well. This not only depends on a sound state of the digestive organs, and a regular circulation of the blood, but also upon the perfect state of the absorbing vessels, and the organs of secretion. It is this circumstance

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* Lectures on Diet and Regimen, p. 160.

† Professor Finke's Medical Geography, vol. i. p. 449.—As soon as the negroes are landed, he observes, they are immediately examined with regard to their health, as unblemished slaves are principally sought after. Slave-dealers therefore, are well acquainted with semiotics, (the doctrine of signs or symptoms), and I have somewhere read, as stated in the text, that the great Boerhaave learnt the characteristic signs of perfect health from slave-dealers. At the sale, many blemishes are attempted to be concealed; when any are discovered, they very much diminish the value of the slave. The want of a tooth, for example, makes a slave worth two dollars less. Twenty-four hours are allowed the purchaser to examine whether his slave be sound or not.

‡ See Tissot, Essai sur les Maladies des Gens du Monde, p. 8.

which has enabled persons, the Duke de Richelieu and Louis XV, for example, to attain great age, amidst lives of debauchery and fatigue. Nor is a strong natural power of healing less advantageous, since it keeps back and removes the cause of disease. This is more especially exemplified in savages, who are in so healthy a state, that the most dreadful wounds heal without surgical assistance *. 6. An uniform and faultless conformation of the whole body; for an imperfect structure gives an easy opportunity for the rise of local diseases, which may bring on death. 7. No particular weakness of any part; for, even where the organization is apparently good and perfect, there may be a secret enemy in some part or organ, which may afterwards destroy the whole body. 8. A medium quality in the texture of the organization, strong and durable, but not too dry or rigid; which latter qualities are extremely prejudicial to the duration of life. In the last place, in the words of an eminent physician, *Sani denique hominis est venerem appetere, et ad eam valere, et sobolem procreare* †; and indeed, it seldom happens that those who are in this respect deficient, or whose persons are mutilated, live long.

At the same time it is proper to bear in mind, that strong constitutions sometimes do not last so well as the more feeble; for in the first place, the strong are tempted to take less care of their health, and to use greater freedom with it; and in the second place, they often suffer more from the same disease than those who have less energy to contend with it; the vehemence of the disorder, as in fevers and inflammations, being frequently aggravated by the strength of the patient.

5. *Form of the Individual.*—Among the various circumstances which necessarily tend to promote health and longevity, independent of attention to the observance of particular rules, there is none of more essential importance, than *the form* which the individual receives from nature; for it is evident, that, in so delicate a machine as man, any material fault, in regard to structure, must sooner or later be fatal ‡.

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* It may be observed however, that the savage has an advantage in being saved from the injurious effects which the imagination produces on affections of the body, in the civilized condition of man.

† Conspectus Medicinæ Theoreticæ, auctore Jacobo Gregory, M.D. edit. nova, an. 1790; vol. i. cap. l. p. 11.

‡ Plausible arguments however, are not wanting in favour even of deformity. William Hay, Esq. who was a Member of Parliament for several years, wrote an ingenious essay on deformity, which was published separately, and is also preserved in Dodsley's Fugitive Pieces, printed in 2 vols 8vo, anno 1765. Mr Hay himself was deformed, and he defends the shape which nature gave him, by the following observations: "It is natural to imagine, that if the human frame is warped and disproportioned, it will be lessened in regard to strength and activity, and will be rendered less fit for its different functions; consequently, that deformed persons should not be healthy or long lived. But this is a question best determined by facts; and, in this case, the instances are too few, or unobserved, to draw a general conclusion from them. Besides, health is more in a person's own power than is commonly imagined, and is more the reward of temperance, than the effect of constitution. The celebrated Esop certainly was not young when he died, and might have lived longer, had he not been murdered at Delphi. The Duke of Luxemburg died at 67; the Lord Treasurer Burleigh at 78; Mr Pope's father at 75. On the other hand, there are seve-

Artists commonly divide the height of the body into ten times the length of the face. They likewise divide the face into three equal parts: the first commences at the springing of the hair on the forehead, and terminates at the root of the nose; the nose is the second division; and the third extends from the nose to the end of the chin. In measuring the rest of the body, they use the term *nose*, or length of the nose, to denote the third of a face, or the thirtieth part of the body. The first face begins at the root of the hair, above the forehead, and extends to the end of the chin; but from the top of the forehead to the crown there is still a third of a face, or a nose in height.—Thus, from the top of the head, to the end of the chin, there is a face and a third; from the chin to the juncture of the clavicles, or collar bones, two-thirds of a face; and therefore, from the top of the breast to the crown of the head, is twice the length of the face, or the fifth part of the body. From the joining of the clavicles to the under part of the nipples, they reckon one face; from this to the navel, is the fourth face; and the fifth extends from the navel to the division of the inferior extremities, which should complete half the length of the body. Two faces are exhausted between the thigh and knee, to the last of which they allow half a face, being the first half of the eighth face; two faces are assigned between the knee and top of the foot; and from that to the sole, half a face; which completes the ten faces or length of the body. This division has been made from men of ordinary size; but in those of a higher stature, they allow about half a face additional between the nipples and the commencement of the thighs, which, in tall men, is not the middle of the body. When the arms are fully stretched in a horizontal line, the space between the tips of the middle fingers, is equal to the whole length of the body, including the head and legs. From the joining of the collar bones to the articulation of the shoulder bone with that of the arm, is one face; when the arm hangs down or is bent forward, it is four faces in

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ral instances of deformed persons dying at an early age. Experience, and the observation of naturalists will determine, whether deformity, *abstractedly considered*, is prejudicial to health; but in its consequences it is most commonly an advantage. Deformed persons having a less share of strength than others, are more careful to preserve it, and are often more inclined to be temperate, which is a great preservative of health. As deformed persons also, are not formed for violent exercise, they are less liable to those disorders which are the natural consequence of it. They also escape many accidents to which persons of an athletic make, and who glory in their strength, are always exposing themselves, in order to try or prove it. Few deformed persons however, can want strength to perform moderate exercise, which is a great preservative of health."

An intelligent correspondent observes, with respect to the form and growth of the individual, that, if we except the narrow chest, and the habit and appearance of debility which some persons have, particularly when young, he does not think that any particular circumstances denote probable longevity, as he has seen long-lived persons of almost all forms, complexions, and habits of body. In general however, he thinks, that persons of moderately spare habits are longer lived than corpulent persons, yet of these he has known many attain different periods between 70 and 80, which is as long as the generality of persons can expect, or perhaps wish, to protract existence.

length; two between the joint of the shoulder and the elbow, and two between the elbow and the root of the little finger; in all five faces; and an equal number for the other arm, which is precisely the length of the body; about half a face remains for the length of the fingers; but it must be remarked, that half a face is lost in the joints of the elbows and shoulders, when the arms are extended. The hand is about a face in length, the thumb a third of a face, or a nose; and the longest toe is nearly of the same length with the thumb. The under part of the foot is equal in length to the sixth part of the height of the body.

Such is the standard of perfection, according to which we may form an idea of the best proportions of the male human figure; though it may be impossible to find such a degree of symmetry in any one individual *.

Medical men, in their view of the form best calculated for health and longevity, deal more in general description, than in such minute details. According to Hufeland †, who has treated more fully than any other medical author upon this part of the subject, the following is the portrait of a man destined for longevity.

He has a proper and well proportioned stature, without however, being too tall. He is rather of the middle size, and somewhat thick set. His complexion is not too florid; at any rate, too much ruddiness in youth is seldom a sign of longevity. His hair approaches rather to the fair than the black; his skin is strong, but not rough. His head is not too big; he has large veins at the extremities, and his shoulders are rather round than flat. His neck is not too long; his belly does not project; and his hands are large, but not too deeply cleft. His foot is rather thick than long; and his legs are firm and round. He has also a broad arched chest, a strong voice, and the faculty of retaining his breath for a long time without difficulty. In general, there is a complete harmony in all his parts. His senses are good, but not too delicate; his pulse is slow and regular.

His stomach is excellent; his appetite good; and digestion easy. He eats slowly, and has not too much thirst, which is always a sign of rapid self-consumption.

In general, he is serene, active, susceptible of joy, love, and hope: but insensible to the impressions of hatred, anger, and avarice. His passions never become too violent or destructive. If he give way to anger, he experiences rather a useful glow of warmth, an artificial and gentle fever, without an overflowing of the gall. He is fond also of employment, particularly calm meditation, and agreeable speculations; is an optimist; a friend to natural affections, and domestic felicity; has no thirst after honours or riches, but is satisfied with his lot.

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* Buffon, vol. ii. p. 460, 461. The celebrated artists, Bartolozzi and Cipriani however, gave more grace to their figures, by deviating from these proportions, and giving more length to the body, particularly in females. In regard to females, Felebien, in his Entretiens, vol. ii. p. 44, 45, has drawn up a particular description of the beauties of the female form, the substance of which is given in Crito, or a Dialogue on Beauty, by Sir Henry Beaumont. See Dodsley's Fugitive Pieces, in two vols 8vo, printed anno 1765.

† Vol. i. p. 231.

The sentiments of the celebrated Lord Bacon upon such a subject, must always be treated with great deference and respect, and it is the more necessary to advert to them, as he alludes to some particulars not mentioned by Hufeland. Among other observations, he remarks, that a head somewhat less than in the proportion of the body, a moderate neck, wide nostrils, a large mouth, an ear gristly, not fleshy, teeth strong and contiguous, firm flesh, a raw-boned body, with veins lying higher than the flesh, betoken long life. He adds, that a broad chest, a large hand, a short and round foot, thighs not fleshy, deep calves of the legs, eyes somewhat large, senses not too quick, the pulse in youth slow, but quicker in old age, facility in holding the breath in youth, the body inclined to be bound, but more laxative in the decline of years, are also signs of long life [*].

But it is not merely from the speculations of artists, of philosophers, or of physicians, that the form best calculated for health and longevity has been ascertained; for the bodies of long-lived persons having, in various cases, been examined by skilful anatomists, the causes of their longevity, and of their ultimate dissolution, have been thus discovered, with considerable, though not decisive, accuracy.

The first anatomical account of the dissection of an old person, is the one given by the celebrated Dr Harvey, of Thomas Parr, who died (16th November 1638), at the extraordinary age of 152 years and 9 months [†]. Notwithstanding his great age, his body was found very fleshy, his breast hairy and large; his heart was great, thick, fibrous, and fat; his viscera were sound and strong, especially the stomach; his brain was entire and firm, and all his inward parts appeared so healthy, that, if he had not changed his diet and air, he might perhaps, have lived a good while longer. He had such strength of body, that he was able, in the 130th year of his age, to do all kinds of husbandman's work, even thrashing of corn; but coming out of a clear, thin, and free air, into the thick atmosphere of London, and after a constant plain and homely country diet, being taken into a splendid family, that of the Earl of Arundel, where he fed high, and drank plentifully of the best wines, the natural functions of the parts of his body became overcharged, his lungs obstructed, and the habit of the whole body quite disordered, so that death soon followed [‡].

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[*] He farther observes, that the fair complexioned are shorter livers than the black or red. That the hairs of the head should be hard, and not soft or delicate; and that hairiness of the upper parts, and on the breast, is a sign of short life, but of the lower parts, as the thighs and legs, of long life.

The celebrated Lavater, (Hunter's Translation, vol. iii. p. 169), gives the following as the signs, if not the ingredients, of long life. An elevated forehead, sunk eyes, a large nose, frontal sinuses raised and spacious, a chin firm and prominent, lips closed, a skin soft and puckered, but not over lax, a character artful, suspicious, covetous, and deceitful; obstinacy and emulation are inseparable from it. Every man, he adds, destined to reach an advanced period of life, has a muscular forehead, furnished with a soft skin, and the nose somewhat curved.

[†] His grandson, Michael Michaelstone, lived to the great age of 127. See Easton, p. 75. He died an. 1763.

[‡] The whole description is too long to be here inserted, but will be found in

There is another account of the dissection of an old man, also preserved in the Philosophical Transactions, which merits observation *. It is that of a worker in the mines of Switzerland, who died in 1723, aged 109 years and three months. Without specifying the anatomical peculiarities, it may be sufficient to remark, that many important parts of the body, which ought to have been soft, were found in a hard state, in many cases bony and cartilaginous, and, in some particular places, quite ossified; plainly proving, that the dissolution of the human frame, is owing to the soft parts becoming hard, and even bony, and, consequently, incapable of performing their proper functions.

A third, and most satisfactory account of the dissection of a person distinguished for old age, is the one given by Dr James Keill, of John Bayles, a button-maker, who died at Northampton anno 1706, in the 130th year of his age. This account is accompanied with some judicious reflections on the constitutional requisites for longevity.

Dr Keill observes, that the weakness of his stomach, and the hardness of the aorta, or the great artery of the body, were the principal causes of his death. The coats of the stomach were so thin, (hardly thicker than thin writing paper), that they were incapable of performing their usual functions, and consequently, his digestion must have been spoiled. He had not tasted meat for some years; and had latterly lived solely on small beer, bread and butter, and sugar. But even had his digestion been better, it would have been of little avail, for it was impossible that his blood could circulate duly, while the great artery, having become cartilaginous, gristly, or hard, had lost its elasticity. Nor is this all: his whole flesh and skin felt hard; and his brain was so firm and solid, that, when cut, it hardly moistened the sides of the knife. It is highly probable, that the same disposition prevailed throughout the whole body. Indeed, whoever considers how soft a substance an animal body is, at its first beginning, and how, from time to time, it acquires firmness and solidity, will be easily induced to believe, that old age brings on a more than ordinary hardness in all the fibres and vessels.

The necessary consequence of this hardening and contracting of the vessels and fibres, is a diminution of their secretions; the skin is always dry, from deficient perspiration †. The fulness of the vessels,

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the Philosophical Transactions, No. 44, p. 886;—also in Lowthrop's Abridgment, vol. iii. p. 306. In Doctor Harvey's account, it is particularly remarked, that the appearance of the *partes generationis* served not a little to confirm the report of his having undergone public censures for incontinency, even at the age of 120, especially seeing that much after that time, he married a widow, who declared " eum cum ipsa rem habuisse, ut alii mariti solent, et usque (at 120) annos retroactos, solitum cum ea congressum frequentasse."

* Philosophical Transactions, No. 376.—See also Mead's Works, p. 349.

† They are likewise generally bound. Old Bayles went to stool but once in the ten or twelve days, for some years before he died. From this circumstance, and from the great quantity of blood which Bayles had, it is probable that he would have lived longer, with the assistance of opening medicines, which would have diminished the quantity of his blood; or even by gentle and moderate bleedings.

and the frequent rheums and catarrhs of old people, indicate the closeness of the coats of the vessels; and, indeed, when the fibres of the arteries become indurated, instead of assisting, they obstruct the heart in circulating the blood.

It follows from the anatomical examination of Parr and Bayles, that there are two particulars which seem to be essential to long life. A due conformation of all the vital parts is certainly most desirable; but a sound heart, and good lungs, are absolutely essential. The heart, in particular, must be strong and fibrous, for, as it is left alone to force the circulation of a large quantity of sluggish blood, great strength is requisite to propel it through the inactive vessels, to the extremities of the body, and back again;—this, of course, may be more easily done when the individual is of a low stature, such as old Bayles was. The goodness of the lungs, and a large chest, are also essential, thus allowing the air to have full effect upon every particle of the blood.

Dr Keill justly remarks, that the dissections of old persons are not yet sufficiently numerous, to afford grounds for any positive opinion regarding the effects of age, and the causes of the death of old men *; but that it certainly is proper to endeavour as far as possible to preserve such a softness in all the fibres, that they may easily yield to the pressure of the blood, and, by their elasticity, restore themselves to their former state, and thus enable the body to perform all its proper functions.

Height and corpulency still remain to be considered. As to the former, Lord Bacon remarks, that tallness of stature, if it be not immoderate, with a convenient form, and not too slender, especially if the body be active withal, is a sign of long life. On the other hand, men of low stature live long if they be not too active and stirring †.

The middle-sized, in our opinion however, are more likely to attain longevity than either the tall or the short. The tall are too apt to get a habit of stooping, which injures the organs of respiration, and hastens their dissolution ‡: the short are too apt to become fat: whereas the middle-sized can easily keep themselves erect, and are not generally disposed to corpulency.

In regard to leanness on the one hand, or corpulency on the other, Lord Bacon makes the following distinction: To be lean, with a settled temper, denotes long life; and length of life may also be expected, from a more fat habit of body, joined with choler, and a disposition stirring and peremptory.

6. *Sex.*—It has been much disputed, whether individuals of the male or of the female sex live the longest. If women are most exposed to domestic disease, men are most liable to suffer from the dan-

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* The necessary information on this head might be obtained, by dissecting the bodies of such old men as die at any public hospital, in particular those of Chelsea, Greenwich, and Kilmainham.

† To be long, and slow in growing, he adds, is a sign of long life; if to a greater stature, a greater sign; if to a lesser stature, yet a sign; though contrarily, to grow quickly to a great stature, is an evil sign; if to a small stature, the less evil.

‡ It has been suggested, that old people should wear stays to keep themselves erect, as the bending of their bodies is so injurious to them.

gers of war, the risks of commerce, the inclemency of the elements, and other external injuries; and also, are more addicted to those irregularities and excesses which shorten life. At the same time, it is to be observed, as a circumstance adverse to the longevity of females, particularly in high life, that it is more fashionable to be delicate than robust: whereas, if good health were considered to be an *accomplishment*, and as necessary for a woman as any showy acquirement, the case would soon be altered [*].

The bodies of males in general, though not without some exceptions, are stronger, larger, and more active, than those of females. In the human species, in particular, the male is commonly not only larger than the female, but his muscular fibres are firmer and more compact, and his whole frame indicates a superior strength and robustness of texture [†]. But as in women, the bones, the cartilages, the muscles, and every other part of the body, are softer and less solid than those of men, they must require more time in hardening to that degree which occasions death: neither are the female sex generally so much subjected, as men, to bodily exertions [‡]. Women, of course, ought to live longer than men: nay, it is said, that those men who have a weakly appearance, and who, in point of constitution, approach the nearest to women, often live longer than those who are more robust [§].

This doctrine is fully confirmed by experience; for, by consulting the bills of mortality, it appears, that not only from their birth, but even after they have passed a certain age, the probability of long life is greater in women than in men.

Some authors state it to be an ascertained fact, that the mortality of males is greater than the mortality of females [‖]; and that this is the case, not only when they have grown up, but even among children, insomuch, that the proportion in favour of females, is as 39 is to 30. Indeed it appears, from the Tables of Assignable Annuities for Lives in Holland, which had been kept there for 125 years, wherein the ages, and the sex, of the persons dying, are faithfully entered, that taking into account all the accidents of life, a given number of females have lived above three or four years longer than the same number of males[*].

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[*] See this subject ingeniously discussed in the Manual of Health, pp. 17 and 18.

[†] See Smellie's Philosophy of Natural History, vol. i. p. 236. This very circumstance however, is against the male at his birth; for the largeness of his size, and in particular of his head, makes him more apt to suffer. Hence, there are more males still-born than females. Hippocrates says, that females are later in forming and growing in the womb than the males: but, when they are born, they grow faster, have their understanding earlier, and are sooner old, on account of the weakness of their bodies, and their manner of living.—*Lynch on Health*, p. 8.

[‡] Too much exercise, (says Lord Bacon), is no friend to prolongation of life; which is one cause why women live longer than men, because they stir less. See Extracts from Bacon, Code of Longevity, vol. iv. p. 289.

[§] See Buffon, vol. ii. p. 477, and Smellie's Philosophy of Natural History, vol. i. p. 509.

[‖] Observations on Reversionary Payments, 5th edit. anno 1792, vol. i. p. 8, and 126.

The greater mortality of the male sex is so fully proved, on most unquestionable authority, in the course of Dr Price's observations, that he conceives the reason why more males are born than females[†], is, that there is some particular weakness or delicacy in the constitution of males, which makes them more subject to premature mortality, and consequently, renders it necessary that more of them should be produced, in order to preserve a due proportion between the two sexes[‡]. But this can hardly be admitted; and the fact seems to be easily accounted for otherwise, when it is recollected that at every period of life males are more exposed than the other sex to dangers and hardships, and to the inclemency of the seasons.

Dr Price himself seems to concur in this idea, as, in another part of his work, he questions whether this difference, so unfavourable to males, is *natural;* and, after stating some facts, in support of his doubts, he infers that human life, in males, is more brittle than in females, only in consequence of adventitious causes, or of some particular debility, which takes place in polished and luxurious societies, and especially in great towns[§].

It may be proper also to mention, that, according to the most authentic information, not only do women live longer than men, but that married women live longer than single, in the proportion, according to some registers, of not less than two to one: a difference so great, that the calculation cannot be regarded correct[||].

The doubts however, which still remain, regarding some particulars connected with this branch of the inquiry, point out the necessity of having recourse to authentic statements, from proper parish registers, and bills of mortality for the whole kingdom, under legislative authority, and not to trust to those obtained in the careless manner practised at present. If this plan were adopted, and properly enforced, it would give the precise periods, according to which human life wastes, in all its different stages, and thus supply the necessary data for computing accurately the values of all life annuities and reversions. It would likewise shew the degrees of salubrity of different situations; mark the progress of population from year to year; keep always in view the number of people in the kingdom; and in many other respects furnish instruction of great general importance[¶].

7. *Renovation of the Distinctions of Youth.*—Among the various circumstances which distinguish youth from old age, three of the most

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[*] Philosophical Transactions abridged, vol. ix. p. 326.

[†] Derham, in his Physico-Theology, p. 175, has stated the proportion of male to female births, as 10 to 13, but Dr Price proves that it should be as 20 to 19. *Reversionary Payments*, vol. ii. p. 366.

[‡] Ibid. vol. i. p. 368, and vol. ii. p. 367.

[§] Ibid. vol. ii. p. 269, and 270.

[||] Reversionary Payments, vol. i. p. 364. Vol. ii. p. 196, 197, and 268. Hufeland, vol. i. p. 168, remarks, that, though more women become old than men, yet that men only, attain to the utmost extent of longevity.

[¶] Price on Reversionary Payments, vol. i. p. 281.

remarkable are, the colour of the hair, the possession of teeth, and the clearness of vision. And it is singular, that many instances occur in which, after old people have experienced a failing with respect to these particulars, nature has made, as it were, a fresh effort to renew the distinctions of youth.

The Hair.—The colour of the hair varies much in different men during their youth; but when they get old, it almost uniformly becomes first grey, and afterwards white. This does not happen at the same age in every case; for some are grey as early as twenty or twenty-five, while others have only a few grey hairs at fifty, or even sixty years of age.

It can hardly be doubted, that dryness or want of moisture is a principal cause of grey hairs; and, consequently, that the custom of wearing hair powder, must bring them on sooner than otherwise would be the case. There is reason therefore, to believe, that keeping the roots of the hair well moistened with oily substances, is the best means of keeping back, what so many are inclined to consider as a blemish, but which, at the same time, is not inconsistent with the possession of good health, or the attainment of longevity.

It sometimes happens, that the grey hairs disappear, and in their stead hair of a different colour makes its appearance. Thus it is recorded in the Transactions of the Royal Society [*], on the evidence of Dr Slare, that his grandfather, whose hair, about the eightieth year of his age, had become white, grew dark afterwards.

It is also reported of one Mazarella, who died at Vienna, in the 105th year of his age, that, a few months before his death, he not only got several new teeth, but that his hair, grown grey by age, became black, its original colour [†].

A similar circumstance is mentioned of Susan Edmonds of Winterbourne, Hants, who died at the age of 104; and who, five years before her death, had new hair, of a fine brown colour, which began to turn grey a few months before her death [‡].

John Weeks of New London in Connecticut, who died at the age of 114 years, is also said to have lost his grey hairs, which were succeeded by hair of a dark colour [§].

The Teeth.—Former generations seem to have enjoyed a great superiority over the present in regard to the duration of their teeth. A place of interment was lately opened at Scone, near Perth, in Scotland, which had remained untouched for above 200 years, and yet, to the astonishment of every one, among a great number of skeletons, which were there discovered, there was hardly any of them whose teeth were not entire and sound [||]. This is to be ascribed perhaps to greater simplicity of diet.

The means of preserving the teeth has been already touched upon. On the present occasion it is only necessary to observe, that many examples may be given of persons, who, having lost their teeth a second time, have got a third set of teeth, in some cases partly, in others wholly, supplying the places of those they had lost. Bacon has well observed, that new teeth, put forth in our older years, betoken long life.

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[*] Vol. xxviii.

[†] Easton on Human Longevity, p. 147.

[‡] Ibid. p. 168.

[§] Ibid. p. 286.

[||] This curious circumstance has been certified to me, in a letter from the Rev. Mr Aitken, minister of Scone, near Perth.

The case of the old Countess of Desmond, which was accounted so remarkable, that many considered it to be a fable, is sufficiently authenticated, although Lord Bacon seems to have considered it doubtful. He says, " *They tell a tale* of the old Countess of Desmond, that she did twice or thrice cast her old teeth, and that others came in their room *."

In the Philosophical Transactions †, it is affirmed by Dr Slare, that his grandfather, who was a native of Bedfordshire, had all his teeth strong and firm at the age of 80; and that, within five years afterwards, *he had a new set.* He adds, that he remained in good health and strength to the 100th year of his age, and even then died in consequence of fullness of blood. These circumstances, the Doctor attributes to the frequent use of sugar, of which his relation was a great eater.

It is singular, that the teeth should, in this particular instance, be preserved so long, notwithstanding the use of sugar, since the ruin of the teeth is so often attributed to that article ‡.

In the Philosophical Transactions, two other instances are also mentioned: one of Joseph Shute, a clergyman, who got a new tooth when he was 81 years of age; and another, Mariah Start, who got new teeth at 75 years of age §.

In the return formerly mentioned, of the old people in Greenwich Hospital, John Moore, a native of Ireland, the oldest man then in the house, is stated to have had four new fore-teeth, within five years preceding the return; one of which he had accidentally lost ‖.

I myself once saw an old man named James Donald, who had got new teeth, which I had an opportunity personally of examining. They appeared to be much softer than teeth usually are, and not fit to do the same service; and, on the whole, I was disposed to consider them as an imperfect substitute.

It is said by anatomists, that the foundation of three sets of teeth may frequently be traced in the jaw. But, if that be often the case, it is surprising that specimens of such formations are not more common.

The Sight.—There is also reason to believe, that after the sight has been lost, seemingly by a decay of nature, it has again returned, not perhaps in its former perfection, but so as to be of great use.

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* Bacon's Works, vol. iii. p. 152.

† Vol. xxviii.

‡ The negroes have fine teeth, though they use much sugar; and it is refined, not raw sugar, that is supposed to be hurtful to the teeth.

§ Lowthrop's Abridgment, vol. iii. p. 297.

‖ In Easton on Longevity, many instances are given of a renewal of teeth, as that of Philip Laroque, p. 104; Marion Gibson, p. 225, &c. &c. There is also a remarkable case of this sort in Hufeland, vol. i. p. 171. A lady passed 70 years of age, remarkable for the fineness of her teeth, ascribes their preservation to her having laid it down as a rule to clean her teeth after every meal.

One of the most singular instances of the sight being renewed, occurred in the case of Machell Vivan, a native of Scotland, but who was settled as a clergyman in Northumberland, and lived upwards of 110 years. A particular account of him is given by a person entitled to credit, who saw him personally, in the year 1657, and who declares, that his hair had become like a child's, rather flaxen; that he had three new teeth, which he however, got with difficulty; and though, about forty years preceding that period, he could not read the largest print without spectacles, yet that his sight was renewed, so that, without spectacles, he could read any print or writing, however small. He had five children after he was eighty years of age *.

I am assured, from respectable authority, that the following circumstance may also be depended upon. A lady in the county of Fife, North Britain, who died at the age of 89, after having been under the necessity of using spectacles for several years, recovered her sight, so that, for some time before she died, she could read very small print, and see to sew linen, with the naked eye.

The Honourable Mrs ——, after using, for some years, the magnifying glasses suited to advanced life, had her sight gradually restored, and now even uses convex glasses.

Dr Rush also mentions an old man, (Adam Riffle of Pennsylvania), who, about the 68th year of his age, gradually lost his sight, and for twelve years continued entirely blind; at the end of which period, his sight returned, without his having made use of any means for the purpose, and without any visible change in the appearance of the eyes. It is singular, that after recovering his sight, he saw as well as ever he did. During both the gradual loss and recovery of his sight, he enjoyed his usual health †.

Several other instances of a similar nature might be cited ‡; but these are sufficient to establish the general principle, that aged people may have this distinction of youth renewed.

It is singular, that no particular instance has occurred, of the sense of hearing having been renewed, after being lost by a decay of nature, or the effects of old age. It is to be observed however, that the human race are not so apt to lose their hearing as their sight. In the return from Greenwich Hospital, of 96 old men beyond 80 years of age, the organ of vision was impaired in about one-half, whereas, the organ of hearing only to the extent of about a fifth. But this circumstance can easily

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* See Fuller's Worthies of England, fol. edit. 1662, County of Northumberland, p. 309.

† Medical Inquiries and Observations, by Benjamin Rush, M. D. printed at Philadelphia, anno 1793, p. 312.

‡ See Easton on Longevity, account of Thomas Edgar, p. 195; and Janet Allan, p. 215. An intelligent physician informs me, that he knew an old lady of above 70, who had used spectacles at 50, and about 70 could sew fine work without them. She had cartilaginous substances on the gums, which appeared to her as new teeth. When these changes took place, she had a regular monthly discharge of blood from an issue, somewhere about the knee. She was so entirely *renovated* as to be able to walk many miles.

be accounted for, as the eye is certainly a more exposed organ than the ear, and more liable to a variety of accidents.

Conclusion.—Dr Rush conjectures *, that the antediluvian age was attained, by the frequent renovation of different parts of the body; and it evidently appears, from the facts above narrated, that such a circumstance was not impossible. At the same time, other reasons may be assigned, for the great age of the patriarchs.

Friar Bacon, in his work entitled, " *De retardandis senectutis malis*," makes a number of observations regarding what he calls the accidents of old age, as greyness of hair, wrinkles, &c.; nay, he proceeds so far as to point out medicines which will preserve youth, and cause grey hairs to fall, and black or youthful ones to come in their room. This work, though curious, and therefore meriting to be preserved †, is unfortunately mingled with much of that mysticism, so usual in medical works at the period when it was written.

Lord Bacon has paid particular attention to the subject of the teeth, and the renewal of them. The points to be considered regarding them, he observes, are,—1. The preserving of them; 2. The keeping of them white; 3. The drawing of them with least pain; 4. The staying and easing of the toothach; 5. The binding-in of artificial teeth; and, 6. That great one, *of restoring teeth in old age;* which, he says, may be thought of, and would be, indeed, *magnale naturæ* ‡. But though nature occasionally indulges itself in such renovations, it is hardly possible to believe, that it could be compelled to it, by any means in the power of man to apply; and indeed, if proper attention were paid to the preservation of the teeth, commencing at an early age, it would rarely be necessary.

No. VII.

RESULT OF THE INQUIRIES REGARDING ATHLETIC EXERCISES, MADE BY SIR JOHN SINCLAIR.

Lord Bacon, in alluding to the Athletic Exercises of ancient and modern times, observes, that the practices are known, but the philosophy that concerneth them, is not much inquired into. This he imagines may be attributed to the fact, that the arts and practices therewith connected, are supposed to be obtained, either by an aptness of nature, which cannot be taught, or only by continual custom, which is easily prescribed; but though he contends that these opinions are not true, yet he forbears to note any deficiencies. He concludes with remarking, that the excellency of those practices " serveth, for the most part, but for mercenary ostentation, *yet in mediocrity they are for use* *."

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* On Old Age, p. 312.

† It is reprinted in the Code of Longevity, vol. iii.

‡ Bacon's Works, folio edition, vol. iii. p. 151.

Before I knew that such doctrines were sanctioned by the authority of this great philosopher, I was led, in the course of the investigations I have been carrying on regarding health and longevity, to make a very extensive and particular inquiry, into the nature and effects of athletic exercises; also into the various arts and practices by which the frames of men, or other animals, could be strengthened, or even the opposite effect of *wasting*, could be produced. The information which I have been fortunate enough to collect, has been highly satisfactory; and the reader will be enabled to estimate its importance, by a perusal of the following observations.

The points to which I propose more particularly to allude, on the present occasion, are these †: —

1. *Form and Size.*—A person trained to boxing, ought to be of a good height and weight; but in regard to running, the height is less material: it may vary from five to six feet, any height beyond being too large; nor is there an instance of a very big man being a first-rate runner. One of the most famous runners ever known, (West of Windsor), who at the age of forty-four, ran thirty-one miles in four hours and a quarter, was only five feet four inches high. Long thighs and short legs are desirable for running. Wrestlers ought to be of a middle size, athletic, and in particular, full breasted and broad shouldered, that they may possess both wind and strength. They should also have brawny legs and arms, and yet be clean-limbed.

It is remarked, that a head proportionally small, betokens corporeal strength, and a person so formed, is reckoned peculiarly fit for training.

2. *Age.*—Eighteen is the earliest age fit for training, and thence to forty, but seldom older; though the effect of attention to diet and exercise, upon the system, would doubtless be of use to persons beyond that time of life.

3. *Time required.*—Two months are supposed to be sufficient to bring a man into good plight, either for boxing or running a match, provided he is previously in tolerably good condition. Sometimes a month will do for running; but at other times it will require three months, before the person is in full flesh.

4. *Medicines.*—With a view of clearing the stomach, and getting rid of all superfluities, and also to promote good digestion afterwards, medicines are given at the commencement of the training. They begin with an emetic, and in about two days afterwards give a dose of glauber salts, from one to two ounces; and missing about two days, another dose, and then a third. It is supposed that one emetic, and three doses of physic, will clear any man of all the noxious matter he

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* See Bacon's Works, vol. ii. p. 40. Also Code of Longevity, 2d edit. vol. iv. p. 267.

† The whole communications on which this paper is founded, are printed in the second volume of the Code of Health, second edition, commencing at p. 82. of the Appendix, and terminating at p. 164.

may have had in his stomach and intestines. In training for running, only one dose of salts at the beginning is necessary; and if it be not found to answer, another dose in proper quantity is administered. The celebrated trainer for running, John Smith, generally gave an emetic also, after training with him for some time; and if the person had a plethoric habit, he took eight ounces of blood from the arm.

The ancients, in order to empty their stomach, previous to their entering on the regimen peculiar to the Athletæ, seem to have preferred the use of emetics to purgatives. Stimulating glysters also, were occasionally administered; and one or other of these modes of evacuating the stomach or intestines was practised, whenever the appetite appeared to flag. In order to exercise the patience of the ancient Athletæ, and to accustom them to bear pain without flinching, they were occasionally flogged on the back with the branches of a kind of rhododendron, till the blood flowed plentifully. By diminishing the quantity of the circulating fluid, *this rough kind of cupping*, counteracted the tendency to plethora, to which they were peculiarly liable.

The practice of having medicine administered as a part of training, is not confined to man; all animals artificially prepared for feats of strength or agility, being subjected to this discipline. Thus race-horses are purged two or three times a-year, each course consisting of three doses, preparatory to their getting into training exercise; and when they use mild physic, it makes them afterwards thrifty and healthful. Game-cocks are also physicked, three or four days before fighting; or fed on barley, which is reckoned a *scouring* food.

5. *Air.*—The necessity of pure air is uniformly insisted upon by all the trainers to athletic exercises. The more persons in training are in the open air, the firmer their flesh becomes; and they soon learn to be indifferent about the weather; but they must change their clothes if wet. The morning air being cooler, is always preferred for taking exercise. Hence, early rising is considered indispensable.

Among the ancients, to be exercised in pure salubrious air, was deemed of essential importance. The principal schools of the Roman Athletæ, were accordingly established at Capua and Ravenna, places, the air of which was reckoned the most pure and healthy of any in Italy. They carried on their exercises in the open air in all sorts of weather, the changes of which soon ceased to affect them.

Air is also of infinite consequence to other animals. Horses under training, are exercised as much as possible in the open air; and in order to give game cocks a good constitution, pure air is found to be essential.

The salutary influence of the atmosphere likewise, is found to be the best means of promoting recovery from disease. When game-cocks are shut up in close pens, they contract an infectious disease, called *the roop;* their heart swells, and there is a fetid discharge from their eyes and nostrils. There is no cure for this disease whilst they are confined in the pens; but if they are turned out to their walks, *where they get air and exercise*, most of them recover.

6. *Liquid Food.*—There is no circumstance which seems to be more essential in training, than to take only a small quantity of liquid

food. Those who are trained to boxing, must not exceed three English pints during the whole day, taken at breakfast and dinner, and a little after supper. Those who are trained to running, are allowed as much as four pints, taken at different times in the course of the day. The ancient Athletæ also, were allowed but a very small quantity of fluid. This *dry diet,* as it is termed, seems to have constituted an essential and important part of their regimen. The ancient Athletæ likewise, were allowed to drink nothing but water, or some species of thick sweet wine; but in modern times, water alone is never given during training. Good and old malt liquor, which has not been bottled, is reckoned best. Sometimes it is taken with a toast in it. Some people take tea, but it is not recommended, nor is it strengthening; and no liquor is given warm. Sometimes white wine and water is given for breakfast to a person under training, who does not like malt liquor. If the person trained insists on having wine, from being accustomed to it, red wine is preferred to white; and half a pint of wine is allowed after dinner, but none after supper. Spirits are never permitted, not even mixed with water. Milk is never given, as it curdles in the stomach, and has a fattening quality. Liquor is never given before meals, unless in cases of extreme thirst. *The liquor should not be taken in great draughts, but by mouthfuls, which quenches the thirst better, the great object required.*

The reasons assigned for these restrictions are, that too much liquid is apt to swell the belly, which is bad for the wind; and much drinking promotes perspiration, which is extremely weakening, if not occasioned by exercise, so that liquid food encourages soft unhealthy flesh.

With physic, warm gruel is given to work it off, after which a little broth is given with boiled mutton: but the broth must be allowed to cool, in order to take off the fat, and then warmed up again. Beef tea, if used, must be managed in the same way; so attentive are these trainers to the smallest minutiæ of diet.

7. *Solid Food.*—The diet of persons in training, is extremely simple, consisting only of animal food and stale bread. Turnips, carrots, or other vegetables of that sort, are never given, being difficult to digest; nor potatoes, as they are watery. Fish is not allowed, being also reckoned watery, and not to be compared with meat in point of nutriment. No butter nor cheese is given, cheese being accounted indigestible; nor eggs, excepting the yolk raw in the morning, which is supposed to prevent bilious complaints. Veal and lamb are never given. Sometimes, for a change of diet, those who are trained to running, are allowed a fowl or rabbit once a-week; but it must be eaten with vinegar. No pork is given in modern times, being apt to purge some people. The legs of fowls, being very sinewy, are much approved of; but on the whole, beef and mutton are accounted the best kind of diet. Men will live longer on beef, without change, than on any other kind of animal food; and it is the most nourishing; but mutton is reckoned to be more easy of digestion. The meat must always be fresh, for if salted, it would occasion thirst. Fat, being of a greasy nature, creates bile, and fouls the stomach;

hence the lean of meat is preferred to the fat; but the lean of fat meat is the best.

No quantity of meat is fixed, as so much depends upon the constitution and appetite. The ancient Athletæ always ate to satiety, and were sometimes even forced to gorge themselves with food. It is observed that little men eat as much as large men, and frequently more.

As to the mode of dressing the animal food they take, beef-steaks are reckoned very good: but they should be rather *underdone*, and indeed the meat given to those who are put on a course of training, is in general underdone. It is better to have the meat broiled than roasted or boiled, in either of which modes of dressing nutriment is lost. Pies and puddings are never given, nor any kind of pastry.

Two full and substantial meals are given in the day. Breakfast of meat, about eight o'clock, and dinner at two. Suppers are not recommended; but a biscuit and a little cold meat may be taken about eight o'clock, two hours before going to bed. It is reckoned much against a man's wind, to go to bed with a full stomach, and in general a walk is taken after supper. The first meal must be always digested before a second is given. In training game-cocks, it is a constant rule, before they are fed a second time, to examine *the crop*, to see that it is quite empty. Very little salt is permitted; some vinegar however, is allowed with the food, as it prevents thirst, and promotes leanness. In Yorkshire, the meat is steeped in vinegar. The vinegar must be taken cold. No spices or hot drugs are allowed.

It is observed by Jackson, the celebrated trainer, that the use of solid animal food, is absolutely requisite to produce great bodily strength. This doctrine seems to be confirmed by the information which has been obtained, regarding the comparative health and longevity of the Mahometans, and the Hindoos of India. The Mahometans, when they can afford it, use a portion of animal food with their rice, (either beef, mutton, or fowl,) dressed with spices. The Hindoos, on the other hand, live chiefly on rice, mixed with pulse, and made savoury with butter and spices. The beverage of both is water. Yet the Hindoos, who being husbandmen, mechanics or soldiers, and who consequently should be healthy, are old at fifty, seldom arrive at the age of seventy, and are often carried off in five or six hours, during the monsoon season, by the *cholera morbus, not having stamina enough to support the evacuations attending that disease;* whereas the Mahometans attain to a great age, sometimes to upwards of ninety.

It is proper here to observe, that the practice of the ancients, and of the moderns, differs considerably in regard to diet. The food of the ancient *Athletæ*, originally consisted of dried figs, new cheese, and boiled grain; but animal food was afterwards introduced as a part of their regimen, and it was found to produce firmer flesh, and to give more real muscular strength than vegetable diet.

The ancient Athletæ were restricted to the use of pork, which, according to Galen, contains more real nutriment than the flesh of any other animal used as food by man. Indeed he affirms, that if the

Athletæ lived but for one day on any other species of meat, they found that next day their vigour was manifestly impaired. Modern trainers prefer beef or mutton; which, as food, have probably been brought to greater perfection in modern, than in ancient times. The ancient Athletæ also, sometimes ate goat's flesh, which was reckoned highly nutritious.

8. *Exercise.*—Men under training always begin their exercise early in the morning; in summer at five, and in winter at half past six, or as soon as it is light. The great object of exercise is, to enlarge the muscular substance, and to reduce the superfluous fat, at the same time, by causing free perspiration, it renders more rapid the changes of absorption and deposition, so that both the fluids and solids of the body are purified and improved. Sufficient perspiration is usually produced by exercise, so that sudorific drugs are unnecessary for that purpose. Those who are trained to boxing, get a run in the morning, but are not so violently sweated as those trained for running. The latter take a run for three miles twice a-day; and when this is not sufficient to remove the obesity, the person trained is put between feather-beds, and made to drink warm diluents; being every day thrice sweated in this way, well rubbed with flannel, and kept within doors till cool. During *the run*, those who are trained to boxing are always in flannel, but they take their walking exercise in their usual clothes. When they come home, they are generally laid down on a bed, and gradually rubbed dry, one limb after another, and then clothed. After taking their regular exercise, they are employed in cricket and other active amusements. Quoits is reckoned a good exercise for them. In Broughton's time, they were accustomed to have music and dancing. If a muscular man, during his training, gets much thinner, his exercise must be reduced; but if he get fatter, or more muscular, it is a proof that the training agrees with him.

Exercise, on the whole, seems to be the most essential branch of the athletic regimen. Game-cocks, when gaining strength, are shut up in close pens, and excluded from the air; but it is necessary to give them exercise, and for that purpose they are taken out *to spar*, their spurs being covered, that they may not bruise or wound one another. In regard to horses, the exercise is still more violent, as more depends upon it than is commonly imagined. It is a general rule, *that perspiration, from exercise, never weakens.*

The union however, of vigorous exercise, and pure air, is the great secret for the acquisition of strength. Diet itself seems to be but a secondary consideration; at least if one may judge from the great strength of the natives of the Sandwich Islands, who appear to be much superior in that respect even to British seamen, though their food, both solid and liquid, is of the simplest nature. Indeed, their muscular strength is attributed, by an intelligent observer, to their not using stimulating food, or drink, and thus being in a manner in a perpetual state of training.

If exercise be steadily persevered in, and not carried to excess, it may be gradually increased even in old age, to what would otherwise be thought wonderful; and with its increase, the faculties strengthen, and an approach to the vigour of youth is made.

Quantity of Sleep.—Persons when training, ought to go to bed early, (about ten o'clock), and are allowed from six to eight hours' sleep. Indeed, eight hours' sleep is in general reckoned necessary, though much depends upon habit. People who take a good deal of exercise must have rest. The ancient Athletæ were permitted to sleep as many hours as they chose; and great increase of vigour, as well as of bulk, was supposed to be derived from long-continued sound repose.

9. *Miscellaneous Articles.*—In training, cleanliness is particularly necessary. Bathing is of great use; and if there be an opportunity, bathing three times a-week in salt water is salutary. Fresh water should be used when salt cannot be had; but the shorter time a person remains in the water, so much the better. It is a useful practice, to prevent colds, for men to bathe their feet in cold water every morning. Fewterell, the boxer, also recommends washing the loins and arms with cold water, and to use no soap on such occasions. Keeping the feet *perfectly dry at all times*, is essential. If the legs are swelled by a long journey, when the person retires to rest, the feet should be raised higher than the head and body. Young people may wear calico next the skin, but older people in general ought to wear flannel. Persons in training, never sit down after taking exercise, without changing their clothes, for fear of rheumatism. Those who are trained to athletic exercises, must abstain from excesses of every kind

> "Qui studet optatam cursu contingere metam,
> Multa tulit, fecitque puer, sudavit et alsit;
> *Abstinuit Venere et Baccho.*"

These are directions to be particularly attended to, for neglecting them is destructive to the acquisition of strength.

10. *Diseases.*—The only bad effect attending training, in modern times is, that the body at first becomes a little feverish. But the ancient Athletæ, in addition to the various accidents to which they were necessarily exposed, in the course of their exercises and combats, were also liable to a rupture of the blood-vessels in the lungs, to apoplexy, and to lethargic complaints.

11. *Effects on the Body.*—The training to athletic exercises, has important effects upon various parts of the body, as the head, the stomach, the lungs, the skin, and the bones; and also tends materially to improve, and to preserve the shape of the body, and to promote its duration.

In regard to the head, a man in the best ordinary health, when he receives a blow, becomes giddy. But after training, giddiness is not so easily produced.

Its beneficial effects upon the stomach is proved by the appetite, which becomes much sharper by training. Persons trained are generally costive; because the food must not be of an opening quality; and as so much matter goes off by perspiration, other evacuations cannot be so abundant.

The great object of training however, is, to obtain the benefit of a free respiration, without which nothing great can be performed by man, or by any other animal. Free and powerful respiration, is a certain sign of good health, and is essential to a fresh colour of the face, to lively spirits, to cheerful feelings, and to the healthy and vigorous actions of the body. Training always appears to improve the state of the lungs, or to *improve the wind*, as it is said; that is to say, it enables a person to draw a larger inspiration, to hold his breath longer, and to recover it sooner, after it is in a manner lost.

There is no part of the body, on which training has greater influence than upon the skin. Clearness of the skin, is the best proof of a man being in good condition; and the state of the skin is the criterion by which amateurs judge of a person being fit for exercise. During a course of training, the skin always become clear, smooth, well-coloured and elastic; the veins are distinctly seen through it; and when the hand of a person, in a high state of training, is held up against a lighted candle, the light appears to shine through it.

The ancients seem to have paid particular attention to the state of the skin, and for that purpose made use of the warm baths, and of friction; but as they were accustomed to anoint the skin with unctuous matters, with a mixture of oil and wax, and even with dust, it was the more necessary to take every means of cleansing off those impurities.

Training has a remarkable effect *upon the bones*, which get harder and tougher, and are less liable to be injured by blows or exercise.

By training, the shape is much improved; the belly in particular is reduced, which is absolutely necessary for a more free respiration. This is particularly the case with horses, whose bellies, swollen with coarse indigestible food, eaten in great profusion, are drawn into half their size in the course of training. The chest also, is made more open; and persons who are regularly and constantly exercised, as fencing-masters, &c. retain their appearance, carriage and shape to the last; which is much in favour, not only of their health, *but of their longevity.*

Thus, in the space of two or three months, great changes may be effected in the form, the character, and the powers of the body; and thus the very same individual, who becomes giddy and breathless on the least exertion, may have his health not only improved, but be enabled to run thirty miles in a shortness of time hardly to be credited; to walk above a hundred; or varying the object in view, to excel in wrestling, or to vie with a professed boxer.

12. *Effects on the Mind.*—The effects of training upon the mind, are also of the highest importance. It is very certain that whatever improves the health of the body, gives strength and elasticity to the mind; and we have, in a course of training, not only a rapid improvement of all the corporeal functions, but a system of moral restraints, which are in the highest degree beneficial to the mind.

13. *Whether the Effects are permanent.*—How far such effects are permanent, is a point that is much disputed *. The temporary excitement of great strength, for a particular purpose, is certainly not calculated for permanency; but the state of health, after training, is always good, and not subject to complaints; and the acquired state of health would probably continue, if the system were persevered in. Many boxers indeed, have lived long, or at least to the age of eighty and upwards; but many of the principal boxers have died young, owing to excesses of every sort, in which they are apt to indulge after the training is over. Were it not for that circumstance, and the injuries they receive by blows in the body, they would probably live long.

It is also remarked, that running-horses, when trained, do not wear out sooner than other horses; on the contrary, they bear fatigue much better. Nor does training game-cocks shorten their lives; on the contrary, they live longer than common poultry.

14. *Reduction of Strength.*—Persons pitched upon for horse-jockeys will, of course, be light and slender, but they are often under the necessity of reducing their weight considerably, and that at a very short notice; sometimes in a week or ten days, to the amount of a stone and a half, and sometimes even two stones, though that is reckoned a dangerous experiment. This is effected, partly by diet, but principally by great exercise, and violent perspirations. Their diet in general consists of a small piece of bread, and sometimes a little butter, with tea in moderation, for breakfast; fish, if it can be obtained; if not, a small piece of pudding, and little or no meat for dinner; tea in the afternoon, and no supper whatever. Instead of malt liquor, they take wine and water, one part wine and two parts water. Their exercise is very severe, consisting of a walk after breakfast, of from ten to fifteen or sixteen miles, loaded with five or six waistcoats, two coats, and as many pairs of breeches. Those who do not like excessive walking, have recourse to Glauber salts. Sometimes even more violent measures are adopted. Besides privation of food, and violent exercise, they are put between two feather-beds, placed before a great fire, or in a barrel, and sweated as much as possible.

The following observations occur with reference to this branch of the inquiry. 1. When privation of diet is carried to a great extent, the stomach, weaned from food by every means, will not afterwards receive or retain it, and the consequences are generally fatal. 2. Jockeys, who have been accustomed to be thus wasted, stand it better than gentlemen, to whom such practices must be more unusual †. 3. It is hardly to be credited, how very soon jockeys, who have been thus wasted, recover their former state and weight *; and, 4. Several jockeys are known to have been frequently severely wasted, without being injured thereby; and some of them have reached even an advanced age.

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* The ancient Athletæ, rarely preserved their vigour, so as to be fit to appear in public, for a longer period than five years, and they are represented by Galen, as a short-lived race of men; but this may be attributed to their moral conduct; for when they were not under a course of discipline, they indulged themselves in every kind of drunkenness and debauchery.

† It has been observed, in regard to boxing, that persons in high life cannot be treated, when trained, (at least at first), exactly in the same manner as common men, from the indulgences to which they have been accustomed; nor are

On the Utility of such Inquiries.

On the whole, the subject of athletic exercises, seems to be well entitled to more attention *in a medical point of view*, than has hitherto been paid to it †. Several gentlemen who have been trained for amusement merely, declare, that they consider the science of boxing to be a most healthful, bracing and manly exercise, and that the requisite training does a man good instead of harm. To be trained to running or walking also, is most healthful, if judiciously gone about, and not carried to any improper length; and those who have been trained, never look better, than immediately after their walking-matches. The true cause, why persons trained to those exercises, are in general short-lived, arises from their dissolute lives, after giving up their respective occupations, and commencing *idle men*, as is generally the case.

There is reason also to believe, that by training men in a regular manner to athletic exercises, not only might the general health be confirmed, but many diseases might be prevented. In regard to this point, the evidence is extremely important ‡. Jackson, the celebrated trainer, states, that by training, the skin always becomes quite clear, even though formerly subject to eruptions: that it always appears to improve the state of the lungs, and consequently must be useful in disorders affecting that organ: that nervous disorders are always prevented by it: that there never was an instance of a trained person being paralytic: that a course of training is an effectual remedy for bilious complaints; and that the gout may, in a great measure, by the same means, be prevented from recurring. These no doubt are the assertions of a person, partial to the art he practises; but whoever considers deliberately the facts and observations above stated, must be satisfied, that they are not so groundless as at first glance might be imagined.

Nothing now remains, but to apply the above facts and observations to practical use.

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their frames in general so strong. Jackson, the celebrated trainer, observes, that they eat too many made dishes, and other improper food, and sit too long at table. They also eat too great a variety of articles, and drink too much wine. No man should drink more than half a pint of wine. They also keep irregular hours, and lie too long in bed.

* Buckle, the great rider, after severe wasting, has gained nine pounds in eighteen hours.

† For the advantages of fencing, see an intelligent letter by Henry Angelo, Esq. Code of Health, 2d edit. vol. ii. p. 163–4.

‡ There is no instance as yet, of any person being positively put in training, for the sole purpose of recovering health; but it is known, that a gentleman, in a bad state of health, after living hard in London, has gone to the country, and by living in some respects according to the training system, has returned to London completely recovered.

The first point to be considered, is, whether it would not be advisable, to train young men to boxing, fencing, and other athletic exercises, and to make it a much more general practice at our schools, and universities, than hitherto has been the case. There is every reason to believe, that by following such a plan, a foundation of health and strength may be laid in youth, that would be found of infinite consequence in future life.

It is also well worth consideration, whether the army in general, both officers and soldiers, ought not to be trained to some of these athletic exercises, and occasionally employed in them, with a view of strengthening their frames, and enabling them the better to sustain the hardships of war. The weight of arms and accoutrements would be less fatiguing; and marching to a much greater distance than is usual at present, would not prevent their coming to the field of battle, in good fighting condition.

Above all, these particulars are submitted to the consideration of medical men. Their enlightened minds must derive advantage, from a series of facts and observations, to which they have hitherto had but little access. In some cases, where there exists a predisposition to gout or to consumption, perhaps the attacks of the disorder may either be postponed, or its severity may be mitigated, by the practices above explained; and there are other cases, where a course of training, may remove complaints of a nervous or bilious tendency. It is not improbable also, that, under their auspices, new improvements may be made in these arts, the beneficial effects of which, both on the mind and the body, even in their present state, have, it is hoped, been sufficiently demonstrated, in the course of the preceding observations.

JOHN SINCLAIR.

Charlotte Square,
Edin. 20th Jan. 1807.

P. S.—It is satisfactory to find, that since the preceding observations were written, the suggestion made as to the practice of athletic exercises, has been generally adopted, in public seminaries, (in military schools in particular), and to a considerable extent, in the British army *.

J. S.

Edinburgh, 10th April 1833.

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* *Explanation of the proposed Plan of Gymnastic Exercises, by Monsieur Voarino.*

" Gymnastics, as introduced into England by M. Clias, and now so generally approved of in London, is the art of regulating the movements of the body, by developing the strength, and augmenting the agility, activity, and firmness of the human frame. It preserves, and even re-establishes the health, (which has been satisfactorily testified by many physicians, who have directed their attention to the subject). From its importance, in promoting the improvement of the physical and moral faculties, and, more especially, its great utility to youth, schools for teaching it have been established in several colleges and acade-

No. VIII.

HINTS

ON THE MEANS OF PREVENTING THE MISCHIEVOUS EFFECTS OF "THE ROMAN MALARIA[*];"

AND ON THE IMPROVEMENT OF MARSHY DISTRICTS IN GENERAL, WITH A VIEW TO THE PREVENTION OF THE DISEASES WHICH THEY ARE APT TO PRODUCE.

The malaria seems to be an invisible and diffusible vapour, generated apparently under certain circumstances of heat and moisture, in stagnant waters, and in damp soils, particularly when accompanied with rank vegetation. Diseases thence arise, which form the peculiar scourge of hot climates, and of cold climates in the hot seasons of the year[†].

It is well known, that marshy districts are peculiarly unhealthy. It appears indeed, from tables drawn up by M. Maret, of several parishes in Switzerland, in which a comparison is made between mountainous and marshy countries, that one-half of all born in a mountainous district, live to the age of 47; whereas, the same proportion, in a marshy

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mies in London, and with the greatest success. It is strongly patronized by Government, more especially at the Naval and Military Asylums.

M. Voarino, professor of that art, is strongly recommended, and has been sent by M. Clias, to introduce it into Scotland, according to the following plan, viz.

He proposes to subdivide his pupils into sections, according to their number, and he will make them, *by sections*, distinctly execute all the movements connected with the elementary exercises, which form the fundamental base of gymnastics. This will prepare them for those superior exercises which are performed by means of the following machines:

1. Horizontal Bases.
2. Parallel Bars.
3. Ropes and Masts.
4. Tall Masts.
5. Triangles.
6. Devidoir.
7. Flying Course.
8. Ditches.
9. Jumping Masts.
10. Mounting the Horses.

Thus, by means of an insensible gradation of exercise, the nerves, and the whole strength and vigour of the frame, are most essentially promoted. The scholar becomes a much more active and perfect being, and can more effectually guard himself against the various accidents to which, at any future period of life, he may be exposed.

[*] It is not probable, that the most effectual means of mitigating the sources of these noxious disorders should have occurred to any one, who had not directed his attention *both to agriculture and to medicine.*

[†] See a valuable paper on the Malaria. Edinburgh Review, vol. xxxvi. p. 536.

parish, live only to the age of 25. In the hills, one in twenty of all that are born live to 80; in the marshy parish, only one in fifty-two *.

The miserable consequences resulting from aguish complaints, prior to a country being drained and improved, have been ably depicted, in that valuable repository of useful knowledge, "The Statistical Account of Scotland." In some districts in that country, a certain number of the inhabitants are said annually to have fallen victims to the ague. In others, the distemper was so frequent, that it was with difficulty the farmers could carry on their work, more especially in spring, when the aid of their labourers was most needed. Hence, in some parishes liable to that grievous malady, when any farmer wanted four labourers for any piece of work, he generally hired six, knowing the probability that some of them would be rendered unfit for labour, by an attack of the ague, before the work could be finished.

In the summer months, the malaria is peculiarly destructive in Rome and its neighbourhood. It commences about the beginning of June, and does not terminate till the severe autumnal rains in September. It unfortunately encroaches, every year, on some part of Rome, where it was formerly unknown; and there is a peculiarity in the lines in which it advances, and in the mode of its progress, which hitherto the inhabitants have not been able to explain †.

Being convinced that it is possible, chiefly by agricultural improvements, in which so many important discoveries have recently been made, to have this great source of human misery subdued, I have been led, to submit the following hints to the reader's consideration; and in particular to suggest a plan, by which the malaria would most probably be completely extirpated in the Roman territory.

The improvements I am led to suggest are the following:—1. Draining the land;—2. Cultivating it;—3. Employing calcareous manures; —4. Embanking land apt to be overflowed;—5. Procuring wholesome water for the drink of the inhabitants;—6. Preventing the noxious air generated in thick woods; and, 7. Warm clothing.

1. *Draining.*—It appears from the unquestionable authority of the Statistical Account of Scotland, that wherever the land has been thoroughly drained, intermitting fevers have disappeared.

There are no less than thirty parishes in Scotland, to which this observation is applicable; but in a condensed work like the present, it may be sufficient to give the following instance from a parish in the county of Fife. Before the land in that parish was drained, the families who lived near a piece of stagnant water in it, were subject, both in the spring and in the end of autumn, to intermitting fevers, of from 23 to 33 and sometimes to 39 days' continuance. Whole families were to be seen at the same time, in such distress, that none of them could assist the others, and depending on the kind aid of their neighbours for the supply of their necessities. But since the stagnant waters have been completely drained, those diseases to which the inhabitants were formerly liable, and the sad train of complaints connected with them, have happily been unknown. It is not easy, we are told, to describe the pleasure of viewing luxuriant crops, adorning the place where the eye had been accustomed to see stagnant water, and where noxious vapours, impregnated with disease and death, were formerly so usual *.

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* In regard to marshy situations in general, Dr Price has written a short essay, containing proofs of their insalubrity, and confirming a paper by Dr Priestley, on the noxious effects of stagnant water.

† Edinburgh Review, vol. xxxvi. p. 352.

2. *Cultivation.*—But cultivation is the great means, by which this miasm can be most effectually got rid of, and the salubrity of the air permanently ameliorated. This important circumstance can be accounted for on rational principles.

When land is deepened and pulverized, and improved by means of lime and other manures, it absorbs the rain more quickly, and in greater abundance than in its uncultivated state. Hence less moisture will arise in evaporation.

Increased vegetation also, diminishes evaporation, for water is absorbed in considerable quantities by the plants themselves ; and in proportion to their luxuriance, they not only diminish the reflection of the sun's rays, but keep the air cooler and more temperate, during the heats of summer and autumn. A much greater quantity of water also, is discharged into the atmosphere, by spouty land, producing aquatic herbs, and coarse herbage, than where plants of a finer quality are grown ; and it is a most curious and important circumstance, that while the air immediately above a wet soil, was only 57° of Fahrenheit, the temperature of the dry part of the same field, and of a similar soil, was considerably higher †.

It is likewise well known, that water contains both *pure air*, which is essential for the human species, and *inflammable air*, which is of such importance as the food of plants. By increasing vegetation therefore, that inflammable air, which is injurious to animals, is absorbed in greater quantities, while much more pure or vital air is produced.

The cultivation of the ground, is thus of essential importance, in regard to this important particular, for it contributes, not only to put an end to the malaria which is the cause of agues, and other febrile diseases, but produces a state of the atmosphere, which is favourable to the promotion of health.

In commencing the cultivation of marshy land, it is an excellent plan, to get rid of the surface of the soil, either by paring ploughs, or by hand instruments invented for that special purpose, *and to burn it.* If the ashes were then spread on the ground, a crop of wholesome vegetables might be raised, which would probably derive some nourishment, from those very exhalations, if any should arise, which, though hostile to animal, are favourable to vegetable life. It is astonishing, that so simple a process as that of paring and burning the surface, so well known in various parts of these kingdoms, and the efficacy of which can hardly be questioned, should never have occurred, either to those who reside in districts subject to the malaria, where it might be employed with advantage; or to any of the natives of this country, who have visited every part of Italy in the course of their travels.

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* Statistical Account of Scotland. Parish of Leuchars, vol. 18. p. 586.

† See the experiment mentioned in the Middlesex Report, p. 288.

3. *Calcareous Manures.*—In marshy soils, the use of calcareous manures is of *the highest importance*, and could be procured without much expense, as lime can be found, in the Roman territory, in the neighbourhood of those very marshes, and coal could easily be got by sea to burn it, if a sufficient quantity of wood or turf could not be obtained for that purpose. The effect of burnt lime-stone, in improving the quality of the soil, is hardly to be credited. It either absorbs any noxious matter, or annihilates any deleterious properties it possesses; and it may be relied upon as an established fact, " *That a soil full of calcareous matter, never produces an unwholesome atmosphere.*"

4. *Embankments.*—Much flat and rich land is apt to be overflown during the rainy seasons of the year, which at other periods are perfectly dry; and such land, when loaded with moisture, must necessarily be favourable to the production of miasma. The only mode of preventing such a calamity is, by means of embankments, then bringing the land under cultivation, and manuring it abundantly with calcareous matter. For getting off the water, where embankments are not found to be a sufficient protection, mills may be necessary, in particular windmill-pumps, which are in perpetual motion, without requiring much attendance.

5. *Wholesome Water.*—The preservation of health may be promoted in marshy districts, by procuring wholesome water to drink. This is an object however, to which little attention is in general paid in marshy districts, from the supposed impracticability of obtaining good water. Any difficulty of that description however, is now completely obviated, by the improved modes of digging wells practised in England, in consequence of which, water may any where be procured in the greatest perfection, and at a moderate expense. Of the important effects resulting from the use of good water, there is a celebrated instance in the parish of Steeple in Essex. A well was dug about 500 feet deep, by means of which, excellent water was procured; and by using it, the health of the inhabitants became so much improved, that they found little occasion for the skill of their apothecary, who, previously to that discovery, had derived great emolument in consequence of the insalubrity of the neighbourhood *. When once obtained, water may be sent to a considerable distance, in pipes, at a moderate expense.

6. Another mode of improving the atmosphere of a country is, by thinning the woods, where they are so close as to be impervious to

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* An apothecary at Walden, in Essex, declared, that the inhabitants of that parish, after the well had been dug, and good water obtained, became so much improved in health, that instead of receiving from many farmers in the district, from L.20 to L.30, and even L.40 a-year, he scarcely got, from his former patients, as many shillings *per annum*. See Code of Health, first edition, vol. ii. Appendix, p. 215.

atmospheric influence; and in particular, as a means of meliorating the air, all brush and underwood should be extirpated. It can hardly be doubted, that every thing which retains too large a quantity of unnecessary moisture on the surface, must be prejudicial to the inhabitants in its neighbourhood; and this must be the case, where the woods are so thick, that both sunshine and wind are excluded. At the same time, the protection of groves, where the trees are not too close to each other, and where the soil is dry, has been found of use.

7. *Clothing.*—Among the means by which the pernicious influence of a damp climate, and of a moist soil, is likely to be counteracted, the wearing of flannel next the skin has been particularly recommended. Various diseases are occasioned by obstructed perspiration *on the surface of the body*, and nothing but flannel will preserve this important discharge uniform, in a climate which is subjected to fogs and vapours, produced by water stagnating on the surface of the ground *. In a work published by an intelligent Italian author, (Dr G. Brocchi), which has deservedly attracted the particular notice of the Edinburgh Review †, this branch of the subject is discussed; and it is there admitted, that to a certain degree, warm, and in particular woollen clothing, in short non-conducting coverings of any kind, are best fitted to resist the impressions of many diseases, and perhaps, in a degree, the malaria itself, by its effect on the predisposing causes ‡.

Thus it appears, that when a country is liable to malaria, it may be completely got rid of, or at least its mischievous effects materially diminished, chiefly "*by agricultural improvements.*" And this is not a mere theoretical assertion, for the advantages of such measures have been proved, in the most satisfactory manner, by the experience of several marshy or fenny districts in England. Before they were properly drained, strangers hardly ever ventured to visit them, from the certainty of being subjected to the ague. The inhabitants themselves of these districts, were seldom exempted from that distressing complaint, and thence were distinguished by an emaciated and jaundiced look. But since the improvements which have been effected by agriculture, they have become as healthy as their neighbours. The same results may confidently be relied on, if the same means of improvement were introduced into Italy, or any other country similarly circumstanced; and it would soon be proved, that agriculture was not only the means of providing food, but might likewise effectually contribute to the healthiness of a country, and the security of its inhabitants from disease. Along our eastern coasts indeed, we are interested in the exemption of our neighbours in Holland from that disorder; for there is reason to believe, that a species of malaria is transported from that country, to the British shores, by the easterly winds, which, in part at least, is the circumstance that renders them so unhealthy.

These hints are earnestly recommended to the reader's attention; and indeed there is reason to hope, if the following plan were adopted, that the malaria may be greatly reduced in its violence, if not totally extirpated, in those countries which are unfortunately afflicted with that disorder. It must therefore be a darling object with every true philanthropist, anxious to promote the interests of his fellow men, that some experiments on a great scale should be set on foot, to ascertain the effects of the measures proposed, and above all, that their efficacy should be tried in the neighbourhood of Rome, to prevent the prophecy from being accomplished, "That if the malaria is suffered progressively to increase, the time is not far distant, when the Eternal City shall be no more *." For accomplishing so important an object, the following plan is submitted to the reader's consideration:

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* Statistical Account of Scotland, vol. xi. p. 234.

† Vol. xxxvi. p. 536.

‡ Ibid. p. 550.

Plan of an Association, to be called "THE SOCIETY FOR THE EXTIRPATION OF THE ROMAN MALARIA."

1. The Society shall consist of a President, four Vice-presidents, and twelve Directors, with an indefinite number of Members.

2. That the subscription shall only be L.2 *per annum* from each member, but that donations, to any amount, shall be thankfully received from those who are anxious for the success of the plan.

3. That as soon as it can be effected, and if possible before the next season of the malaria commences, one or more intelligent engineers shall be sent to Rome, to examine into the state of that interesting part of Italy, to make maps or plans of all the territory in the neighbourhood of Rome peculiarly subject to the malaria; and to ascertain the means, by which they can be most effectually drained, and brought into cultivation. To point out also, where other improvements should take place, as in regard to embankments, digging of wells, thinning of woods, &c.

4. That every inquiry shall be made, where lime-stone can be got in that part of Italy, and that the best means, of procuring fuel for the burning it into lime, shall be ascertained; for the introduction of immense quantities of calcareous matter into the soil, not only contributes to its improvement, but is the best means of preventing malaria.

5. That the persons employed for these purposes, shall draw up a plan, and estimate of the expense of carrying on the measures, most likely to prevent the malaria in future, and to establish the salubrity of the climate of that part of Italy; and that such a plan shall be carried into effect next year, as soon as the season will admit of it.

6. That as soon as the society shall be established, the whole plan shall be submitted to the consideration of the Roman government, and its aid and authority be requested, for accomplishing the same; and, in particular, the necessary powers for making, with as little delay as possible, those improvements, which are essential for exempting the city and territory of *Rome*, from the horrors of the malaria.

JOHN SINCLAIR.

133. George Street, Edinburgh,
10th April 1833.

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* See Edinburgh Review, vol. xxxvi. p. 552.

No. IX.

ON THE UTILITY OF WHITE MUSTARD, IN PARALYTIC COMPLAINTS.

In the year 1816, Sir John Sinclair was in Paris, when he received an extract of a letter, (of which the following is a translation), written by Monsieur Jurine, Professor at Geneva, (one of the most distinguished surgeons in Switzerland), dated 24th December 1815, to Monsieur Gillet de l'Aumond, a respectable gentleman in Paris, who, in 1813, had suffered from a kind of palsy of the lower extremities, which had occasioned constant attacks of numbness, and sometimes acute pains.

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"If I could calculate the degree of numbness of your legs, I could judge more certainly concerning it; but whatever its degree may be, I think that electrical sparks, drawn from time to time, from these parts, cannot but be advantageous. The medicine in which I have the most confidence, is, "*white mustard-seed*," of which an ounce, in its whole state, should be taken every day, in three or four portions, before meals. If you were to see a gentleman from Milan, seventy years of age, now dwelling in the house above mine, who came to Geneva, unable to walk, and who now takes long *promenades*, without any other remedy than the mustard, you would be astonished! This seed is an "*elixir of life*" for old men: and alas! my friend, we have been young, but we are so no longer."

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In consequence of this advice, M. Gillet made use of the mustard-seed in his first spoonfuls of soup, at breakfast and dinner. In ten days, the numbness and the pains which he suffered, even in bed, disappeared; but, from its diuretic effects, he waked seven or eight times during the night. He interrupted the use of the medicine for five or six days, and afterwards recommenced it, in the quantity of a quarter, to a third of an ounce in the day, and he became quite well. He recommended it to Sir John Sinclair in the strongest terms, *as a most invaluable remedy;* and Sir John has used it ever since with the happiest effects.

No. X.

An Account of the Means by which Admiral Henry, of Rolvenden in Kent, has cured the Rheumatism, a Tendency to Gout, the Tic Douloureux, the Cramp, and other Disorders; and by which a Cataract in the Eye was removed; with Engravings of the Instruments made use of in the several Operations practised by him.

It is well known, that various modes of *friction*, or operating on the skin and muscles, are practised in different countries. In Europe, the outside of the skin is rubbed with a flesh-brush, or with gloves made of hair, or coarse woollen yarn; sometimes accompanied by fumigations. In the East Indies, friction with the hand, or what is called *champooing*, is well known; and the skin and muscles are pinched, in order to render them flexible, by the fingers of the operator. A similar plan was likewise practised by Mr Grosvenor of Oxford; and Dr Balfour of Edinburgh has introduced, with much success, his system of compression. The operations practised by Admiral Henry however, are still more extraordinary. But though the remedies were violent, *(and hence not calculated for persons with inflammatory habits)*, yet they are not, on that account, to be rejected, and will, in several respects, stand a comparison with any system hitherto recommended. Cornaro, for instance, contrived, by the greatest privations, to preserve a vegetable kind of existence, by means of which however, he could never have cured himself of any of those violent disorders with which the Admiral has been afflicted. Whereas the latter was able to live, without an unceasing attention to his diet and mode of life, full of activity and spirit, and I found him at the age of 91, in possession of his most important faculties.

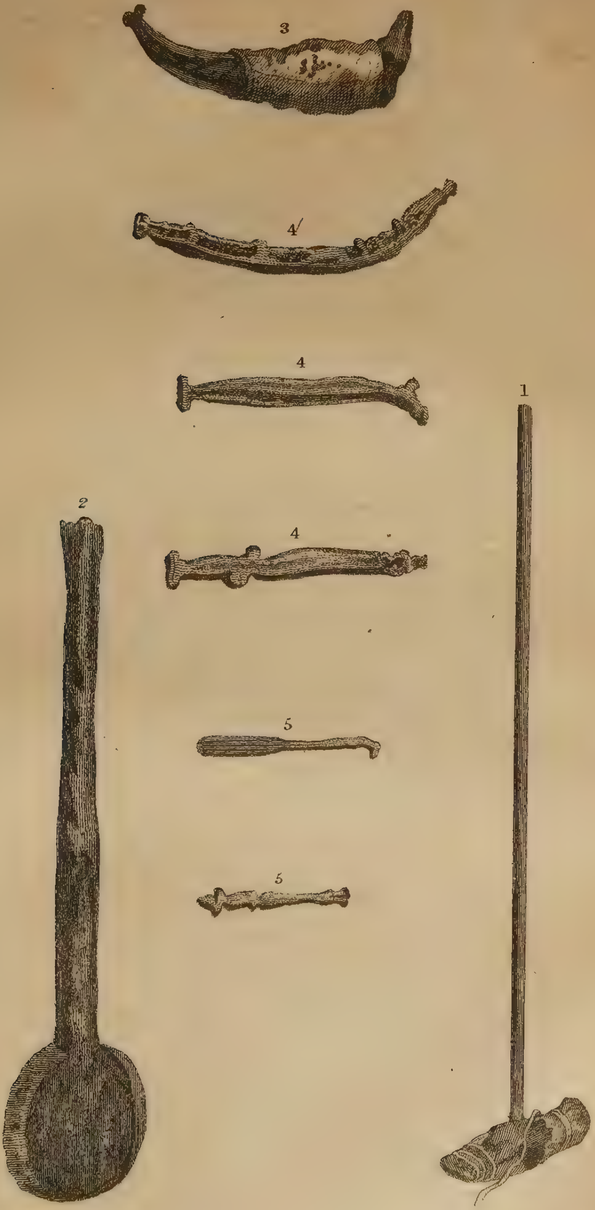
Admiral Henry was born at Holyhead in the island of Anglesea, on the 28th of September 1731, and consequently was, on the 28th of September 1823, turned of 91. He went into the Navy in the year 1744. Whilst on service, he had his thigh bone broken by a hawser, in 1746. He was, at the capture of the Havannah in 1762, first lieutenant of the Hampton Court. During the American war in 1779, in consequence of his success in taking Mud Island in the Delaware, which was considered at the time a most important service, he was promoted to the rank of captain, by that distinguished admiral, Lord Howe. He was made an admiral in 1794, and in 1823, was Admiral of the Red, and the twelfth on the list. He was married; but had no family.

Soon after the close of the American war, anno 1786, Admiral Henry returned to the parish of Rolvenden in Kent, where he had formerly resided, and where, during his absence, a house had been built for him, in the neighbourhood of a pleasant village, about 55 miles from London, 21 from Maidstone, and 3 from Tenterden; where he continued to reside, with the exception of about a year and a quarter, during which period he was on service with the late Earl St Vincent, and assisted in capturing the French Islands in 1793 and 1794.

It was in the year 1787, however, that he began his remedial operations on his body, and those only in a very slight and trifling manner, not knowing but that they might prove injurious, and his friends being extremely apprehensive that he would do himself much mischief. But being of a persevering turn of mind, and finding himself rather benefited than otherwise, he resolved to give the plan a fair trial.

Admiral Henry's system seems to be founded on the following principles: 1. That the chief cause of disease in the human frame, THE INSTRUMENTS USED BY ADMIRAL HENRY.

To face Page IX



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is deficiency of circulation; and that the best means of correcting a tendency to disease is, to prevent the nerves and tendons from falling asleep, or getting fixed; for which purpose they should be kept quite loose by instruments worked amongst them; and, 2. That by keeping the blood-vessels, nerves, and tendons in constant action, by means of the bone instruments, the blood is rendered pure, it passes quickly through the blood-vessels, leaving no fur behind it, so that ossification, which so frequently terminates the human existence, is prevented.

In detailing the information communicated by Admiral Henry, regarding the practices he has adopted, it is proposed to explain,

1. *The Instruments used.*—The form of these instruments will be seen from the annexed engraving. They were at first made of bits of wood, as they could easily be fashioned into any shape; but finding that this material excoriated the skin, he was induced to try bone, which answers better. The bones are boiled to take out grease, and then are smoothed and shaped by a file. The bone instruments are principally made from the ribs of cattle, and it is a great advantage to have them bent, as they can thus be applied more successfully to the different parts of the body. Any knobs are preserved, and others, where necessary, made with a file, so as to apply with effect across the tendons, as they are of great use in forwarding the process, particularly when situated in the middle of the bone. A list of the instruments, in reference to the engraving, shall afterwards be given.

2. *The Mode of Application.*—Every part of the body ought to be daily acted upon by some of these instruments, for the purpose of preserving health, and warding off the infirmities of old age. It was in the year 1787, that he was accidentally led to apply the wooden tools to his knees, ancles, and insteps, which were all much swelled and hard, owing to the rheumatism, and very painful when touched: and though the operation was slightly done, yet he found considerable benefit from it. This gave him more confidence in the success of his plan, and induced him afterwards to try larger and stronger instruments, and to apply them with more force.

To strengthen the feet, Admiral Henry was accustomed to tread the one over the other, with the shoes off; he also used the hammer, with a piece of cork covered by leather, at the end of it, for the soles, and the bone instruments to move the tendons. His feet thus became perfectly sound and well. By the same instruments, he greatly strengthened his heels, and the tendon Achilles, both of which require constant beating, the circulation being very sluggish in both places.

The thighs cannot be too much hammered, and if it is left off, they soon feel the want of it. The Admiral uses the round ends of common glass vials for that purpose, corked, to prevent their breaking, and smoothed by a file. A solid piece of glass may likewise be used, made in the shape of a vial, smooth at one end: the other should have a lip like the common vial, but stronger, and rounded, as it then may be applied to move the tendons.

The Admiral's stomach and bowels had long been in a very bad state; hard, painful when touched, and often disordered; but by working them in bed, with a bone rounded at the end, in each hand, digging into the stomach as much as possible, particularly about the navel, and making the two instruments meet among the bowels, as much as they could be forced to, the stomach is thus rendered so strong, that it will digest any thing *.

The whole of the breast should be worked hard with the vials, and up and down over the lower edge of the breast-bone. The collar-bone should be treated in the same manner: and the bone instruments should be also applied to the tendons under the cheek-bones. The ends of the two thumbs should be applied to each side of the gullet, and the gullet parted from side to side with much force, which will prevent an ossification of the throat, and keep the two passages clear.

The mouth, in general, and under the tongue, ought to be treated in the same manner, either with the back of a dessert silver spoon, or with tools made from the handles of old tooth brushes. The roof of the mouth also, should be thus rubbed, which prevents the swelling of the uvula, and sore throats.

The whole skin of the head, more especially the hind part, requires to be frequently rubbed and scraped by the bone instruments, or by a table-spoon. It clears off all scurf, and so hardens the head, that Admiral Henry, who, before he used these operations, could not sleep without two double flannel night-caps, latterly wore only a single linen one, in the coldest weather.

The arms and hands are to be treated in the same manner, and with as much force as they can possibly bear. When he first applied the wooden instruments to the arms with great violence, he found that the flesh became discoloured, and he was obliged to desist for a fortnight; at the end of that period however, he was enabled to apply the instruments again, without so much pain, and with benefit; when no pinching or blows discoloured the skin.

Whenever he felt any part painful on the tools or instruments being applied to it, he was convinced, that the nerves or tendons were diseased; and he never ceased working with the tools, until there was no pain on their application, and the tendons felt loose.

Admiral Henry describes many of these operations as at first painful, but they cease to be so, if persevered in, and become even pleasant, and so useful, that after going through them in the morning, one feels better all the day after. If regularly done for some time, the muscles become so sound and firm, that neither pinching, nor even beating with violence, gives any pain; while with the improvement of the frame, the mind becomes stronger, the spirits improve, and the faculties are strengthened.

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* The scrotum ought not to be neglected. It is singular that the testes, which from age had become small, became, in consequence of these operations, as large as ever they had been.

3. *Cure of the Rheumatism.*—Admiral Henry was first affected with rheumatism, in the year 1782, when he had it in so violent a degree, that he could only crawl about, and at last became quite a cripple. Though he found himself much the better for the applications he had tried of wooden tools in 1787, yet the swellings in his knees, ancles, and insteps, continued till the year 1810, when he began to use a common hammer made of iron, with a bit of cork on the head, and covered with leather. He persevered in using this instrument for about three years, night and morning, together with small bone instruments, with knobs, for loosening the tendons. He completely succeeded in removing the swellings; and by keeping up the practice, was restored to the use of his limbs.

4. *Cure of Gouty Affections.*—Any tendency to the gout felt by Admiral Henry, was in the hand, and particularly in the fingers, which became swelled and contracted. The middle finger in particular, had become so extremely stiff, that it was impossible to move it. It bent upwards at the middle joint, and the fore finger was also stiff. All these contractions and weaknesses, by the use of the instruments, were completely removed; and not only were the hands and arms rendered firm and steady, but the fingers became quite flexible.

5. *Cure of a Cataract.*—This most unpleasant complaint began to form on Admiral Henry's left eye in the year 1782, but was neglected, as he saw well with the right eye. He was accidentally led to rub it, with the eyelids closed, with the joint of the thumb, and thought the eye was the better of it. He then began, in hopes of dispersing the cataract, to use the round end of a glass vial, smoothed by a file. Some time after he perceived a glimmering of light, and being of a persevering disposition, continued the practice, and in less than two years more the cataract was dispersed. About two years afterwards, a cataract came upon the right eye, which gradually increased. He did not try the friction plan with it, but was prevailed upon to get it extracted, as a quicker mode of cure. The operation was performed with great skill by a distinguished oculist, in 1799, but an inflammation taking place, the eye was lost; so that had it not been for the successful dispersion of the cataract on the left eye, the Admiral would have been quite blind.

6. *Cure of the Tic Douloureux.*—Admiral Henry remained for six weeks in London, after the operation for the cataract, in hopes of something being done for his right eye; but in vain. He then returned to Rolvenden, and in about two months afterwards, was seized with the Tic Douloureux in that eye. Different washes were recommended to him, but though the directions were carefully attended to, they were of no use. This complaint continued for twelve months; he had two fits a-day, of three or four hours each in duration, the eyes close shut the whole time, accompanied by the most excruciating torture. Hemlock, in great quantities, was then recommended, and a seton introduced behind the neck. By these means, he was slowly relieved for about six months, but he was reduced to a state of great weakness. The complaint having ceased, the Admiral was advised to give up the hemlock, and to heal the seton. In about a

fortnight after, the pain returned with as much force as ever, and from his having been so much weakened, it became more severe. He then expected that it would destroy him. He accidentally was led to scrape the upper eyelid down, for a few moments, with a small piece of silver, which completely removed the complaint. He thence conjectured, that the nerve, in which the pain was seated, resides in that spot, for the operation of scraping had been tried on the temple, and all round the eye, and was of no use. He continued to scrape the upper eyelid, with the bone instruments.

7. *Cure of other Disorders.*—By the same operations other complaints are cured. Admiral Henry had formerly been much troubled with corns, but had none, after he adopted the practices above described. It is an effectual remedy against chilblains, to beat the heels and feet with a broad wooden instrument, an engraving of which is given. Admiral Henry strongly recommends, mixing one-sixth oil, with five-sixths rum, as superior to any other preparation for healing cuts. It ought to be applied as soon as possible after the accident happens, and covered with a rag, (for the wounded part must not be exposed to the air, until it is well), and two or three drops occasionally applied to it. The same mixture is the best remedy for an ulcerated sore throat, used in this manner. A vial with the rum and oil, must be taken to bed by the patient, who, lying on his back, must take about a tea-spoonful into his mouth out of the vial, and keep it as long as he can at the entrance into the gullet before swallowing: this to be frequently done in the night time. No family, in Admiral Henry's opinion, should be without a vial of the above mixture, which may be kept for any length of time. It should be well shaken in the vial before it is applied. With a common vial in each hand, filed smooth at the end, Admiral Henry, by pinching the legs from the heel to the ham very hard, and the back, and inside of the thighs, has entirely driven away the cramp.

8. *Miscellaneous Particulars.*—In regard to diet, Admiral Henry took any thing that was presented to him at breakfast or dinner, but no tea or coffee in the evening, as it prevented his sleeping. For supper he took boiled milk, with a large slice of stale bread, either boiled with it, or put in afterwards, which is converted into a kind of mucilage, and the same mess for breakfast, when alone *. He used no salt, pepper, mustard, or vinegar, as he required no stimulants to assist his digestion. He took at the rate of half a dozen of glasses of wine, either white or red, sometimes more and sometimes less, unmixed with water, but as much water afterwards as the wine he had taken, which prevented any bad effects from the wine.

In regard to exercise, he was constantly in motion, and never sat down, except when reading, or at meals. The use of the tools, which ensures the free circulation of the blood, renders any other sort of exercise less necessary *.

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* In regard to the alvine discharge, he was not regular; sometimes once a-day, sometimes every second or third day, and sometimes once a-week, which he considers as quite sufficient. The fæces were always hard. He had always at hand a bottle, in which four ounces of Epsom salts were dissolved in a quart of cold water, and if costive longer than a week, he took a wine glass of this medicine, in bed, at six in the morning, which carried off all crudities.

There was nothing particular in his mode of clothing, except that he wore, in cold weather, even in the house, a surtout of the common woollen stuff, used for women's gowns, which cost him 20d. a-yard. This dress in walking is very light; it was made to button its full length to below the knee; it thus keeps the wind off the body, and not fitting close, always contains a warm atmosphere round the body. He never wore a cloth great coat, which, as it gets wet in rainy weather, he thought must then be extremely injurious.

As to sleep, he went to bed at nine o'clock, when he had no company staying with him, and used his instruments in bed for a couple of hours. He seldom slept above from four to six hours, and if by accident he took more repose, he did not feel so well afterwards. He got always up with pleasure in the morning.

Thus it appears that Admiral Henry, *with a view of preventing and curing disease*, took more liberty with the human frame, than probably any man before him ever attempted. The result was, that Admiral Henry, at the age of above 91, had all the activity of middle age † :—had got the better of several disorders with which he was afflicted ;—and attained as good a state of health as any man in England.

Description of the Instruments.

1. The hammer. It is covered with leather, and has a piece of cork at its head.
2. An instrument made of wood, for beating the heels and soles, where the circulation is very sluggish. This prevents chilblains.
3. The beater to be used in bed. It is short, and handy for that purpose. To give it more force, it has some lead round the middle part of it, covered with leather.
4. Bone instruments for rubbing various parts of the body, with knobs to work among the tendons.
5. Small bone instruments for the inside of the mouth.

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[*] It may be proper to remark, that the moderate, but persevering use of dumb-bells, is of use in preventing the stooping of old age, which is owing to the muscles becoming relaxed, and thence the shoulders shrink and droop.

[†] In a communication, dated 1st March 1823, he thus described his state: "I never was better, and, at present, likely to continue so. I step up and down stairs with an ease that surprises myself. As to gout, and similar complaints, they dare not approach. I have gone through every disorder that man can go through, but plague and fevers, and here I am *in very good condition.* I eat and drink most heartily—my digestion is excellent, and every food agrees. I can walk three miles to Tenterden without stopping."

No. XI.

ON SOME RECENT DISCOVERIES IN THE CURE OF RHEUMATIC DISORDERS. BY SIR JOHN SINCLAIR.

Understanding that Dr William Balfour, of Edinburgh, had adopted a mode of curing rheumatism, in some respects similar to that of Admiral Henry, I communicated to him the little tract regarding Admiral Henry's practices, and was favoured by the Doctor, with a long communication on the subject, and a copy of his valuable dissertation on rheumatism *."

In that work, he gives an account of thirty-three cases, in which friction, percussion, and compression, or bandages, had been tried, and, in general, with great success.

With respect to *percussion*, or beating, it was tried by Admiral Henry in 1810, before Dr Balfour had adopted that remedy; but without being aware of Admiral Henry's discovery, the Doctor's own experiments and practice had led him to a similar result.

As to *compression*, or bandages, I am informed by a respectable naval officer, that in the year 1809, at the hospital of Antigua, bandages were applied for rheumatic complaints, by the direction of Mr John Mortimer, surgeon there, and with good effect.

Dr Balfour however, has great merit, both for the ardour with which he prosecuted these modes of cure, in which he has been eminently fortunate, and the satisfactory grounds on which he has explained the causes of their success.

Being much struck with the importance of the information thus communicated to me, I resolved to have some experiments of the efficacy of these practices tried under my own eye. A young man, a footman in the family, (Charles Killoway), in July and August 1817, had been troubled for about six weeks, with a violent rheumatism, which had confined him for some time to bed, and had disabled him from working. After he had got well enough to go about, he was still unable to do any work, owing to a swelling in his right hand; but by rubbing it with bones, such as those used by Admiral Henry †, in two or three days time the swelling abated, and he soon had the complete use of his hand.

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* Entitled, "Observations, with Cases of Rheumatism," by William Balfour, M. D. 1 vol. 8vo. Printed an. 1816.

† The bones principally made use of by Admiral Henry, are, the ribs of cattle, boiled, to take out the grease, and then smoothed, and shaped by a file. Rib bones are naturally bent, which is a great advantage, as they can thus be more successfully applied to the different parts of the body.

Any knobs are preserved, and others, where necessary, are made with a file, so as to be applied across the tendons, as they are of great use in forwarding the process, more especially if the knobs are situated near the middle of the bone. Specimens of these bones, which may be used for the purposes of percussion, as well as rubbing, may be seen at Callow's, Crown Court. Bones being smoother, are better than tools made of wood, and are less apt to excoriate the skin.

Understanding that two persons in the neighbourhood of ——— were much afflicted with rheumatism, I requested Mr William Davis, an intelligent and experienced surgeon, on the half-pay of the Navy, who had recently settled on Ham Common, to try the efficacy of these new practices on them, the trouble of which he very readily undertook. Much hopes of success could not be entertained in cases, where the malady had been of long duration, and had prevailed to a great extent, but it was desirable to ascertain, whether *any relief*, however moderate, could be obtained.

The following cases, drawn up by Mr Davis, prove, that in circumstances almost desperate, some advantage may be derived by the afflicted, from the practices above explained.

CASE I.

Esther Crittenden, aged thirty-four years, of a scrofulous habit of body, married about ten years, has had two children, and miscarried once, by which accident she caught a severe cold, and was seized with a rheumatic affection *of the whole body*, commencing at the joints of the knee, depriving her, in six months, *of the use of all her limbs*, insomuch that she could neither move a hand nor foot. The joints of the fingers particularly were so contracted, that they have become anchylosed, and she could not lift her hands to her head. About three years ago she was attacked with glandular swellings of the neck, which are very much swollen and enlarged, but they have never broken, and at this time, the neck continues in the same indolent and stationary state. It was on the 5th August last, (1817), that *percussion*, *friction*, and *bandages*, were used, agreeably to your suggestions. Flannel was found too heating, and calico bandages, for all the extremities, were substituted; and this process has been regularly followed up, rubbing every joint of the body morning and evening, for an hour and upwards, then applying the bandages with extreme care, that the pressure be exactly alike from the commencement to the termination of the bandage. The result of this plan, to the present period, is, that she has considerably more strength of her upper extremities; she can lift her hands to her head with facility, *an exertion she has been deprived of for years;* she can likewise support her body in an erect position much better, and from her daily exertion, with the hope of relief, she is in every way considerably improved. She laboured under this very miserable and pitiable situation so many years, receiving, during that time, every medical assistance; in particular, for two seasons of that time she was at the Margate Infirmary, where every hope of benefit was held out, and expected by all her friends; but nothing whatever afforded her any relief; it may be imagined from this, her joy and gratitude, at the benefit she has already obtained, and at the same time how frequently she expresses her regret, that the plan which promises so much utility to her sufferings, was never recommended to her before.

CASE II.

Hannah Morris, aged forty years, of a spare habit of body, married, but never had a child, slept in a damp house about ten years ago, and was immediately seized with rheumatic pains all over her body, and all her joints became swollen and enlarged, especially the elbows and wrists; she has been under the directions of a variety of respectable practitioners, and all the usual remedies applied to the joints, without any effect. The elbows and wrists are quite contracted, and much enlarged. In the beginning of August last, her knees became extremely painful, and swelled very much. In this state she continued, until the processes of percussion, friction, and bandaging were had recourse to, which were commenced on the 25th of the same month; and it is astonishing the beneficial effects she shortly experienced. By regularly attending to the rules laid down to her, in half a dozen rubbings, &c. she had as perfect use of her knees, as she had before she was laid up.

William Davis, Surgeon,
Ham Common, 12th Oct. 1817.

To the Right Hon. Sir John Sinclair, Bart.
&c. &c. &c.

On the whole, it is evident, that even in cases of long standing, accompanied by other disorders, relief ought not to be despaired of; and a great advantage attending this mode of curing rheumatic disorders, is that the means of relief, can be procured at a trifling expense, and that the application of those means will, in some cases, furnish an interesting occupation to the unfortunate patient.

Ormly Lodge, Ham Common,
12th October 1817.

No. XII.

ON THE MEANS OF PREVENTING, AND REMEDYING THE ACCIDENTS, OR COMMON DISORDERS, TO WHICH MAN IS SUBJECT; AND ON THE ADVANTAGES OF COLLECTING POPULAR REMEDIES FOR SUCH DISORDERS.

To escape the various injurious accidents, and common disorders to which every individual is necessarily exposed, is a circumstance of considerable importance with a view to longevity; and to be less liable to those accidents, is one of the principal advantages of a retired and quiet life, and indeed one of the chief reasons, why persons in that situation, are so much distinguished by length of years.

A learned author has written a book on the dangers to which we are exposed, in which there are some useful observations; and in a work of this nature, it is proper to point out the means of preventing or remedying those accidents which are the most frequent. But though some precautions are certainly necessary, yet if persons were to be perpetually on their guard against the three hundred and forty-four dangers which this author enumerates *, life would indeed prove a miserable state of existence. It is better to run almost any risk, and even to perish at once, than to live in a state of perpetual terror and misery.

In treating of this subject, it is proposed to consider the means, 1. Of preventing the accidents to which man is most subject; 2. Of remedying them when they do occur; 3. Of preventing and remedying common disorders; and, 4. Of improving the art of medicine, which would render the accidents and disorders to which we are liable, still less injurious.

SECT. I.—*Of preventing Accidents.*

There was an institution, called "The Preservative Society," founded in the county of Northampton in October 1789. Its objects were, 1. To circulate printed *cautions* for preventing the causes of many of the accidents which occasion death; 2. To publish *directions* for restoring life, after seeming death; and, 3. To grant *rewards* to those who assisted in saving the lives of their fellow-creatures in cases of emergency.

The Society likewise extended its views, to the preservation of human life, in various cases of imminent danger, respecting which it was the means of diffusing much useful information †.

1. Among the *cautions* recommended by the Northamptonshire Society for the better prevention of accidents, the following are the chief:

Most sudden deaths come by water; particular caution is therefore necessary, in its neighbourhood.

Stand not near a tree, nor any leaden spout, iron gate, or pallisado, in time of lightning ‡.

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* See Le Conservateur de la Santé, ou Avis sur les Dangers qu'il importe à chacun d'eviter, pour se conserver en bonne santé, et prolonger sa vie. Par M. Le Begue Presle, Docteur en Medecine, 1 tom. 8vo, imprimé à Yverdon, anno 1763.

† Under its auspices, a very able work, entitled, "Observations on Apparent Death from Drowning, Suffocation, &c." by James Curry, M. D. was published. It was printed at Northampton, but there is no date. It is supposed however, to have been written anno 1791 or 1792.

‡ Dr Franklin advises persons who are apprehensive of danger from lightning, to sit in the middle of a room, (provided it be not under a metal lustre, suspended by a chain), sitting on one chair, and laying their feet on another. It is still safer to bring two or three mattrasses or beds into the middle of a room,

Lay loaded guns in safe places, and never in jest, imitate firing a gun.

Never sleep near charcoal; if drowsy at any work where charcoal fires are used, take the fresh air.

Carefully rope trees before they are cut down, that when they fall they may do no injury.

When numbed with cold, beware of sleeping *out of doors;* rub yourself, if you have it in your power, with snow.

Beware of damps under ground.

Be sure to air vaults, by letting them remain open some time before you enter them, and sprinkling in them powdered lime.

Never leave saddle or draught horses, while in use, by themselves.

Ride not on footpaths.

Be watchful of children, whether they are up, or in bed; and particularly near the fire.

Leave nothing poisonous open or accessible.

When you feel very uneasy, tell your distress early to a steady friend *.

2. The *directions* for remedying accidents are short and simple.

When any accident happens, the common assistants are to do nothing, but as instructed in the printed directions. Six persons only to be ever present at a time. It is recommended to persevere in the means of recovery for six hours, unless sooner successful.

As a specimen of the directions, contained in the printed paper circulated by the Society, the following are given, to be adopted in cases where persons are frozen.

First Person.—Rub the body with snow or cold water; take it to the nearest room with a fire-place, but not near the fire.

Second Person.—Let a messenger be sent to the nearest physician or surgeon, whose directions, as soon as he arrives, are to be strictly observed.

Third and fourth Persons.—Help the first assistant to bring on warmth by slow degrees, by rubbing, and blowing in, so as to imitate natural breath.

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as they are bad conductors, and to put the chairs upon them. Dr Priestley says, that the middle of the cellar, is the place of most absolute safety.

* A work has been published by a German author, (Dr Faust), which he calls "*The Catechism of Health,*" which has been translated into English, and in which there are a number of useful hints. It were to be wished however, that in such a work, the attention were directed to a number of minute circumstances, on which the future safety and comfort of those who learn such a catechism may depend, such as the following: 1. Not to go immediately behind a led horse, he being apt to kick out. 2. Not to walk with your hands in your pockets; for if you slip, you have no means of stopping your fall. Many have suffered by this awkward custom, which having a stick or switch in the hand prevents. 3. Not to go to the leeward of a heap of lime, the dust from which may injure your eyes. 4. Not to go under a ladder where a lamplighter is trimming a lamp. By neglecting to attend to this rule, a promising youth had nearly lost an eye. 5. Not to read damp newspapers. These are merely specimens of rules, the inculcating of which would give to youth the experience of old age.

3. In regard to *rewards ;* (1.) The person first receiving the body, and keeping it as long as the medical attendant desires, to have one guinea, and to be secured from burial charges.

(2.) Four guineas to be distributed among the keepers, if successful.

(3.) Two guineas to be given them, if unsuccessful.

(4.) The messenger who goes for a physician or surgeon from the nearest town, to receive one shilling per mile.

* * *

Such are the outlines of this useful establishment, of which I thought it right to give some account, as it seems to be judiciously planned, and capable of being generally adopted ; for the fund only amounted to about L.50 per annum, and with that moderate sum the expenses were defrayed. If societies on a similar plan were erected in every district, what benefit might not accrue to the public ? Indeed, one great advantage of such institutions is, that persons are instructed how to avoid dangers, and how to remedy them when they occur ; and by the dissemination of such useful knowledge, many accidents might be prevented, or speedily remedied, with but little trouble or expense.

It is necessary however, to remark, that the prevention of accidents, depends much upon the establishment of a good police, both in towns, and in the country, which is not so much attended to in these kingdoms as it ought to be. The magistrates ought to be authorised, *and required*, to remove all nuisances in streets : and in the cautions recommended by the Northamptonshire Preservative Society, some particulars are mentioned, which ought to be enforced by law ; for instance, filling up holes in any ford or bathing-place, and railing, filling, or sloping off pits in dangerous places. The establishment of a good police would, in these, and in other respects, be productive of the most advantageous consequences, and would save the lives of numbers every year *.

SECT. II.—*Of remedying Accidents.*

We shall now proceed to state the modes of remedying accidents when they occur, more especially those which terminate, in what may be called *apparent death.* It was formerly supposed, that life quitted the body, in a very few minutes after the person had ceased to breathe, and any remarkable examples to the contrary, were beheld with astonishment, as particular marks of divine interposition. It has however, now been proved, in a great variety of instances, that death may be *apparent*, and not real or absolute, and that animation and life may be restored by human means. Nay, that not only medical men, who, from the nature of their studies and profession, are peculiarly well qualified to be useful on such occasions ; but that intelligent persons of every description, may easily acquire sufficient information upon the subject, to render them the happy instruments of restoring life [*].

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* Medical police is an extensive subject, which would require a volume to explain, in the manner which its importance would authorise.

1. *Drowning or Suffocation* [†].—Among the many public institutions established in London, connected with the preservation of health, the prevention of accidents, or the means of remedying them, the Royal Humane Society is distinguished by the energy and success with which those important objects have been carried on; and as the method of recovery recommended by that institution, has been sanctioned by long experience, it may be proper to give in this work, an abstract of the principal rules it has laid down.

General Rules recommended by the Royal Humane Society.

1. In accidents in water, convey the body carefully, with the head raised, as soon as possible, to the nearest convenient house; 2. Strip and dry it thoroughly, and clean the mouth and nostrils; 3. *If a young child*, place it between two persons in a warm bed; 4. If an adult, lay the body on a blanket or bed, in a warm chamber, if in the winter, or expose it to the sun, if in summer; 5. Rub the body long and gently, with hot flannel, sprinkled with brandy, gin, or other spirits, and let a heated warming-pan, covered with flannel, be lightly moved over the back and spine; 6. *To restore breathing*, introduce the pipe of a pair of bellows, (when no surgical apparatus is ready), into one nostril; and, closing the mouth and other nostril, inflate the lungs till the breast be a little raised; the mouth and nostrils must then be let free; repeat this process till life appears. If oxygen gas, instead of common air, can be obtained, it is a still more powerful stimulus [‡]. 7. The breast to be fomented with warm flannel, or blankets strongly wrung out of warm water; and if no signs of life appear, the body should be placed in a warm bath, or hot bottles, or bricks covered with flannel, may be applied to the palms of the hands and soles of the feet; 8. Electricity may be early employed by a medical assistant, commencing with moderate shocks, and at intervals, passed through the chest in different directions, to rouse the heart to action.

On signs of returning life, a tea-spoonful of warm water may be given, and, (if the power of swallowing be restored), warm wine or diluted brandy. The inside of the nostrils may likewise be occasionally touched with a feather dipped in spirits of hartshorn, or sharp mustard. The patient should then be put into a warm bed; and if disposed to sleep, will generally awake restored to health.

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[*] Curry's Observations of Recovery from Apparent Death. In *trances*, or cases where the suspension of breathing has occurred spontaneously, a restoration of life has been known to take place, even after interment.

[†] In cases where persons have been immersed in water with their clothes on, or been wet to the skin in rain without the opportunity of changing their clothes, any fever or ill effects, may be with certainty prevented, by the person as early as possible taking internally from fifteen to thirty drops of tincture of opium in a wine glass of water or wine.

[‡] Some have recommended tobacco-smoke to be thrown gently into the fundament by a proper instrument, or through the tube of a pipe, the bowl being covered by a slip of open linen, or other means, so as to defend the mouth of the assistant; but as it is a powerful narcotic, several respectable members of the medical profession have objected to its use. See Curry's Observations, p. 53. Some have therefore suggested, the introduction of common air into the rectum; whilst others advise, warm or rather hot water; and in addition to warm water, a table spoonful of spirit of hartshorn, or essence of peppermint.

The measures above recommended, are to be used for three or four hours; it being our duty to consider persons recoverable, although life does not immediately make its appearance.

The application of a bladder of hot water to the stomach, will likewise be found a convenient, and often effectual mode of assisting to restore suspended animation.

2. *Fainting fits.*—Common fainting fits generally terminate in recovery, after a short interval, without any thing being done; but if that should not be the case, the nostrils should be stimulated with spirits of hartshorn, cold water should be dashed on the face, and the palms of the hands wetted with cold water. If these should fail, the same processes as in the case of drowning should be had recourse to. When faintings however, take place from loss of blood, violent and long-continued fits of coughing, excessive vomiting or purging, great fatigue, want of food, or any other circumstance of a like nature, it may be necessary to inflate the lungs, and to rouse the heart to action by stimulants. For that purpose, warm water, sharp mustard, spirits of hartshorn, sal volatile, eau de luce, or the volatile liniment, may be applied as external remedies, to the wrists, ancles, temples, and parts opposite to the stomach or heart; and, as internal stimulants, from a gill to half a pint of warmed wine, with some sugar, and some spices added to it; or three or four table spoonfuls of brandy or other spirit, diluted in two or three times the quantity of water, may be administered *. Hoffman's drops, in such cases, have also been recommended. The head of a person who has fainted ought to be kept on a level with the body, or even below it.

3. *Intoxication.*—Strong liquors, taken in large quantities, frequently put an end to life almost instantaneously. If apoplexy take place, blood must be taken from the jugular veins, and by applying cupping glasses to the neck. Sometimes intoxicated persons are restored to their senses, (in cases where the pulse and breathings continue, but the body is hotter than natural), merely by applying cloths dipt in *cold* water to the head, neck, stomach and breast. If the hands and feet have become cold, warm water, or flannels well wrung out of it, bottles with hot water, &c. must be applied. An active emetic however, and a sharp purgative glyster, contribute most speedily to recovery; and care should be taken, that nothing tight be allowed to remain about the neck; and that when put to bed, the patient should lie on one side, with the head and shoulders raised by pillows †. When an emetic will not act, the stomach pump should be used, the feet should be placed in hot water, and cold ice, if possible, applied to the head.

4. *Noxious Vapours.*—These arise from various sources, as from malt and other liquors in a state of fermentation,—burning charcoal,—

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* Curry's Observations, p. 68.

† Ibid. p. 76.

brick and lime-kilns, whilst burning,—or the air generated in deep vaults, common sewers, pump-wells, the wells of ships, mines, and other places that have not a free ventilation. When the accident is recent, and the body retains its heat, the application of cold water to the head, neck, breast, and other parts, has been found of great service in promoting recovery; but if the temperature of the body be below the natural standard, heat must be applied, the lungs diligently inflated, the nostrils stimulated, and some blood ought immediately to be taken from the veins of the neck *.

5. *Children smothered.*—From inattention or accident, children are sometimes smothered in beds and cradles. If the body be hot, it should be exposed to a current of air, and sprinkled with cold water, the lungs inflated, and the body treated as in the case of drowned persons †.

6. *Lightning, and apparent Death from Blows or Falls.*—In such cases, instead of despairing of success, every means of restoring life ought to be adopted. Stimulants of every kind, as in other cases of apparent death, should be made use of, but electricity ranks first in point of efficacy, and should always be employed where it can. The shocks should be at first moderate, and directed through the brain, the spinal marrow and the heart, but they may be gradually increased in strength, as may be found necessary. Inflating the lungs however, should not be neglected, nor the necessary means of restoring the body to its natural warmth, where in that respect there is any deficiency. Some stimulant fluid may likewise be injected into the stomach, or thrown into the intestines, by way of glyster ‡.

7. *Prevention of the fatal effects of drinking of Cold Water, or Cold Liquors of any kind in warm weather, or when heated by exercise or otherwise.*—Avoid drinking while warm, or drink only a small quantity at once, and let it remain a short time in the mouth before swallowing it, or wash the hands and face, and rinse the mouth with cold water before drinking. If these precautions have been neglected, and the disorder incident to drinking cold water has been produced, the first, and in most instances, the only remedy to be administered, is, sixty drops of liquid laudanum in warm spirits and water, or warm drink of any kind.

If this should fail of giving relief, the same quantity may be given twenty minutes afterwards.

When laudanum cannot be obtained, rum and water, or warm water should be given. Vomits and bleeding should not be used without consulting a physician.

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* Curry's Observations, p. 63.

† Curry's Observations, p. 65. *Fatal Case.—Fresh Air.*—Sunday evening, a man and his wife, and the wife's sister, took a walk to Milbank, Westminster —the wife carrying her infant, which was a healthy and fine child. After walking some time, the mother gave the infant the breast; and then the sister proffered to carry the child. The sister having obtained it, her care, as well as that of the mother, was "to see that the baby was wrapped up warm; and particularly to pull a shawl or a handkerchief over its face, so that it might not catch cold." On looking at the infant shortly afterwards, it was found to be destitute of all animation, and that blood had issued from its nostrils.

‡ Curry's Observations, p. 79.

8. *Prevention of the fatal effect of excessive Cold.*—Persons are in danger of being destroyed by it when they become very drowsy, and are affected by general numbness or insensibility of the body. As the cold which proves fatal, generally affects the feet first, great care should be taken, to keep them as warm as possible, by protecting them, when they are exposed to cold, with wool, or woollen socks within the shoes or boots, or with large woollen stockings drawn over them, or when riding, with hay or straw wrapped round them ; by keeping up a brisk circulation in the blood-vessels of the feet, which will be best preserved by avoiding tight boots or shoes, *by moving the feet constantly ;* or, when this is impracticable from a confined situation, and two or more persons are exposed together, by placing their feet, *without shoes*, against each other's breasts.

Where the cold has produced apparent death, the body should be placed in a room without a fire, and rubbed steadily with snow, or cloths wet with cold water, at the same time that the bellows are applied to the nose, and used as in the case of drowning. This treatment should be continued a long time, although no signs of life appear, for some persons have recovered, who appeared lifeless for several hours.

When the limbs only are affected by the cold, they should be rubbed gently with snow, or bathed in cold water, with ice in it, until the feeling and power of motion return ; after which the bathing, or the rubbing with snow, is to be repeated once every hour, and continued a longer or shorter time, as the pains are more or less violent.

9. *Bite of a Mad Dog.*—It is unnecessary to dwell on the shocking effects resulting from this accident, for unhappily, if hydrophobia supervene, a cure is not to be looked for. Hence it is necessary to take the most effectual means, however painful, of obtaining security.

It is from the absorption of the saliva, conveyed by the teeth of the animal, into the wound he inflicts, that hydrophobia is supposed to proceed. Some have recommended washing the wound with repeated ablutions of warm and cold water. Others imagine, that if the part bitten be washed with a strong lather of the common soft or tub soap, which has both a drying and detergent quality, and if the wound be afterwards wiped with a sponge or towel, that the disease may be prevented *. Some have also advised the application of a caustic to the part, which is the common practice in this country, but has sometimes failed. When the object therefore is, to secure an exemption from the most terrific affection in the list of diseases, no apprehension of momentary suffering, should induce us for a moment to hesitate, regarding the immediate adoption of such measures as furnish the best probability of success. Palliatives may be used, particularly the soap lather, if surgical aid cannot immediately be had; but there is *no effectual security*, in any case of bite from an animal, in which there is reason to suppose hydrophobia exists, but in immediate excision of the part, or burning it out with hot iron *. Nay, the parts immediately surrounding the wound, both at the bottom and sides, must be carefully included, to prevent the possibility of the knife coming in contact with the wound made by the animal. Even then, the wound should not be done up so as to make it heal, but a paste of caustic should be applied, and suppuration induced by poulticing. It would appear, from some recent experiments, that the application of an exhausted cupping-glass over a part inoculated with poison, prevents its being carried on by the circulation. In parts therefore, where excision is possible, sucking with the cupping-glass should be resorted to, in the hope of extracting the poison, this operation being, of course, preceded by free incisions †.

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* By some this lather is recommended as a preventive of other infections ; but it is not to be relied on, unless accompanied with frequent ablutions of hot and cold water alternately. Some philanthropic individual was at the trouble and expense of recommending this remedy to the public by an advertisement in the newspapers. For other heats, the source of much inconvenience and distress, a mixture of salt and water is better than the lather of soap. If the heat is a species of erysipelas, the following ointment, recommended by a celebrated surgeon, will cure it :

R. Ung. Saturnini,
—— alba, āā ʒij. M. bene. Fiat Ung.

10. *Insects.*—For the sting of insects, eau de luce, immediately applied, destroys the poison. A paste, composed of pounded ipecacuan, is also very effectual in overcoming the painful effects of the biting of insects. When an insect gets into the ear, camphorated oil, or laudanum, should be poured into the ear, or hot steam, where the other remedies cannot be had, may be used with success. When an insect gets into the eye, the eye should be kept shut until the means of extracting it are at hand, viz. soft paper, or soft linen rolled up, and steadily twisted round the extraneous substance, while the eye-lid is held open. It is an excellent rule never to rub the eye, should any substance whatever get into it.

11. *Burns.*—The accidents which arise from burns and scalds, are not all to be treated in the same way.

When the clothes take fire, the individual's only safety will be found in presence of mind, so that he may be sufficiently master of himself to act on some such rules as the following:

1. The door of the room where the accident happens, if it can be avoided, should not be opened; as the external air rushing in rapidly increases the progress of the flames.

2. The first attempt should be, to cover with the carpet or a

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* A young man, who is now a clergyman in Aberdeenshire, on being bit by a mad dog, had sufficient fortitude to apply a hot poker to the wounded place, till it burnt to the bone.

† Parkinson's Medical Admonitions, vol. ii. p. 444. I am informed that the Tartars in the Crimea have an infallible cure for the hydrophobia. It is said, that salivation by mercury has sometimes effected a cure. Cold sea-bathing is recommended in Taylor's Remarks on Sea-Bathing, after the bite of a mad dog.

woollen cloth that part of the dress which has taken fire; and, of course, if water be at hand, it should be immediately poured over the burning garments.

3. When the whole clothes are enveloped in flames, as is too often the case, the only chance of safety is in rolling the sufferer under the carpet of the room.

With regard to burns arising from scalding water, burning coals, melted wax, &c. if they be slight, and the skin be not broken, the part may be gently soaked, but not rubbed, with spirits *, or spirits of wine, turpentine, or æther. The injured part to be covered with a thin piece of linen, and the remedy continued to be applied to it. This cures by stimulating and restoring the tone of the injured vessels.

It has lately been ascertained, that the application of cotton wool to burns or scalds, produces the most beneficial effects. It should be applied immediately after the accident, and allowed to remain until all pain has ceased, or it drops off with the scarf-skin. Pressure should be applied along with it. As the benefits resulting from this remedy are now completely established, and as they mainly depend on its immediate application, a supply of cotton wool ought to be ready in every situation, in which burns and scalds are likely to occur; and no family ought to be without so simple a means of remedying the most painful of accidents.

12. *Poisons.*—It is unnecessary that we should here describe the various substances, which, in smaller or greater quantities, produce poisonous effects on the human system. We may observe however, that it ought to be an object with every one to become acquainted with, not only characteristics of, but the antidotes to, those deleterious articles, to the injurious effects of which he and his neighbours are exposed.

Poisons may be distinguished as derived from the *mineral*, the *vegetable*, and the *animal* kingdoms.

Among the mineral poisons, *arsenic* is not only the most dangerous, but unfortunately, the poison of this class to which people are most frequently exposed; and it is not destructive in its immediate effects only, but may prove, by its injurious effects on the stomach and bowels, the cause of a lingering death.

Poisoning from arsenic is frequently the result of accident, this being a substance which is much used for the destruction of vermin; but as other modes to get rid of them are known, there is no excuse for using so dangerous a poison for such a purpose. Arsenic therefore, should never be sold, under that pretence. Arsenic, as the basis of a colour, is used by painters, who know how to secure themselves against its effects; but those who paint for amusement, should never employ it, from the hazard attending it. Unfortunately, it is likewise the principal ingredient of several quack medicines, which thence are frequently productive of the most fatal consequences.

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* The candid Sydenham expresses a fervent wish, that the use of spirits might be confined to their external application in burns.—*Buchan's Bronomia*, p. 100.

† Hufeland, vol. ii. p. 75.

When a quantity of arsenic, sufficient to endanger the life of a person, has been swallowed, it is recommended that a vomit of sulphate of zinc, or white vitriol, (20 grains), should be taken immediately; and as the great object is to prevent the solution of the mineral, all alkaline solutions and magnesia must be avoided, as these have been found to accelerate the fatal effects. Lime-water, on the contrary, is of infinite use, the arseniate of lime being insoluble. As however, instances occur, in which, although vomiting has been freely produced, still there is reason to believe that undissolved portions of arsenic are adhering to the stomach; in such cases magnesia, soda or potash should be administered, vomiting again produced, and the use of lime-water resumed. As soon as the stomach is fully acted upon, the bowels must be freely evacuated; for which purpose castor oil in large doses is perhaps the best medicine.

Arsenic has not only produced death when taken into the stomach, but by absorption when applied to wounds, and in some instances even when resorted to, to destroy vermin by rubbing into the head. Its good effects as a medicine in particular diseases, has unfortunately, as we already observed, led to its extensive use in the preparation of nostrums *.

Corrosive Sublimate.—When a poisonous dose of this medicine has been swallowed, still the great principle of emptying the stomach must be acted upon; and as it has been established by Orfila, that albumen is a counter poison to corrosive sublimate, the white of eggs beaten up in water should be freely given.

Lead is a poison the more dangerous, from its acting slowly and secretly; so that the health may be destroyed, before people are aware of the mischief which has been effected. Lead is made into utensils and vessels for various economical purposes, and there is great danger in their use, from its noxious qualities being apt to be communicated to many substances. Wine is often injured by lead; and it is well known, how many formerly suffered, from painting their faces with lead-calx. We have referred, in the chapter on liquid food, to the painter's colic, and to the risk of sleeping too soon in newly painted rooms. In poisoning from the sugar of lead, the most efficient antidote is Epsom salts.

The treatment of disorders gradually brought on by the absorption of lead, must be left to the regular physician.

Copper.—Numbers have suffered from the use of copper vessels, which might now be prohibited by the legislature, as those made from cast iron are brought to such perfection. Sugar has recently been discovered to be an antidote to the poisonous effects of copper. Sugared water ought therefore to be freely administered, after accidents from verdigris, or any other poisonous preparation of copper.

A list of the poisons furnished by the vegetable kingdom has been published, to the amount of one hundred and sixty-four * ; besides, there are several others not yet scientifically named. The most usual and approved antidotes for all of them, after vomiting and purging, are emollient substances, as panado with butter; and wine and cordials ought afterwards to be given, to support the strength of the patient. Turnbull considers the *citric acid*, (or the acid of lemons and other fruits of the same sort), to be, not only the best specific for the scurvy, but the best corrector of vegetable and narcotic poisons †.

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* Such as *Plunket's ointment,—pate arsenicale,—Davidson's remedy for cancer,—Singleton's eye salve or golden ointment,—Delcroix poudre subtile,* &c.

In regard to laudanum or opium, when it has been taken in too great a quantity, the great object must be to produce vomiting; and should the drug unfortunately have paralyzed the stomach, the stomach-pump ought to be resorted to. It was long thought that lemon juice was an antidote to opium; and although this is no longer admitted, still the vegetable acids prove very useful in counteracting the injurious effects of opium, after it has been absorbed from the stomach; as they however increase the solubility, and accelerate the absorption of the drug, they should not be administered until, as far as possible, it is completely discharged from the stomach.

Hydro-cyanic, or *Prussic Acid*, is one of the poisons from which we have now to dread the ill effects. This is so virulent a poison, that one drop of it placed on the tongue of a dog, causes death in a very few seconds. This poison seems to destroy life by suspending the influence of the brain, as respiration and the circulation of the blood go on for some time after the death of the sentient powers. Of course, in poisoning from prussic acid, as from every other drug, the first object will be to produce free vomiting. At the same time stimulants must be administered, of which, generally, the most convenient and the best, is hot brandy and water. Orfila recommends, after full vomiting, three or four spoonfuls of oil of turpentine, as an antidote. And M. Virey considers the sulphate of iron in solution, the most effectual means of counteracting this active poison.

There is another most violent poison, obtained from a substance in common use, namely, the *oxalic acid*, which is easily made from sugar; and as unfortunately it is in its appearance very like Epsom salts, fatal mistakes have not unfrequently occurred. As this is the most deadly known poison, it is satisfactory to be able to say, that Professor Christison of Edinburgh has ascertained that magnesia and chalk, by forming with it insoluble and inert substances, are capable of counteracting its effects.

As to animals possessing poisonous qualities, we are fortunately in this country in a great measure exempted from them. We have already alluded to the use of eau de luce, ipecacuan, and cupping glasses, in counteracting the injurious effects of bites of animals, stings of insects, &c. In accidents from the bites of venomous animals, the first object must be to endeavour to insulate the part bitten, by stopping the returning circulation; as, for instance in the leg, by tying a string above the wounded part, which should then be freely fomented, bathed in spirits, rubbed with ipecacuan, eau de luce, &c. And for very venomous bites, free scarification should be resorted to, followed by the application of the cupping glass.

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* See Quince's Lexicon Medicum, by Hooper, *voce* Poison. Hufeland mentions a book in German, in two volumes, *on that subject alone.*

† Turnbull's Medical Works, p. 85. Drinking great quantities of milk has been found of great service, if a poisonous species of mushroom have been taken.

12. *Sprains.*—In the treatment of sprains, hot fomentation has been found of the greatest service, and should be continued for at least half an hour. The sprained limb is then to be carefully dried, and gently rubbed with the following ointment:

Camphor, two drachms;
Spirits of wine, a few drops.
Rubbed in a mortar.
Hogs-lard, one ounce.
The whole to be rubbed together.

Apply a little of this ointment on a soft piece of flannel, and use friction for some time.

It must be kept in mind however, that when there is inflammation in a joint, friction must not be resorted to. In such cases leeches, followed by fomentations, and perhaps cold lotions may be necessary. But in all severe injuries medical advice ought to be resorted to *.

The following is the remedy used by boxers for sprains. *Spirits of thyme*, one ounce; *turpentine*, one ounce and a half; *opodeldoc* †, one ounce; *old verjuice*, one gill; best *brandy*, one gill, or two ounces; *joint oil*, two ounces, or half a gill; mix them well up in a bottle, and rub the part affected with the liniment before the fire, two or three times a-day,

One ounce and a half of *camphor*, and a pint of *sweet oil*, rubbed on the part, is a most excellent remedy for stiffness arising from violent exertion.

13. *Bruises.*—It is surprising how quickly professed boxers recover from the severe bruises they receive. Some apply a poultice, made by scraping fresh bryony root, and mixing it with water. A root called *Solomon's seal*, is also used with great effect for the same purpose. Either of these roots is very powerful in its operation; hence, if there be abrasion of the skin, a severe inflammation will be the consequence. Goulard is therefore used, in the proportion of a table spoonful of extract of Saturn, to two-thirds of a pint of water, constantly applied to the face, with a cloth kept wet, and accompanied by a dose of Epsom salts, (one ounce and a half for a man), which will reduce the swelling in a few hours. It is to be observed how-

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* The late Mr Grosvenor of Oxford, who understood the proper application of friction to diseased joints so well, never commenced his operation when active inflammation was going on.

† The following is the receipt for making opodeldoc, from the use of which the poor would often derive benefit. Take of Castile or black soap one-fourth of a pound, of brandy two or three glasses, and one ounce of camphor; boil them together, and when cold it may be used.

ever, that men under training, are in a better habit of body than the generality of persons, and consequently are more easily cured.

14. *On the Means of preventing the Mischievous Effects of a Fall from a Horse, and similar Accidents.*—Having accidentally heard that a young gentleman, who had a severe fall from his horse, had recovered without having been bled, I thought it right, to apply to a gentleman whose advice had been adopted on the occasion, for information respecting it. In consequence of that application, I received the following particulars in a letter, dated 3d February 1824:

"I saw my nephew immediately after he fell. He was very faint and cold, and evidently in great pain; his face was cut a little in one or two places, but his helmet had protected his head. He had been thrown with violence on a heap of stones, and, pitching on his back, he had received a severe contusion just across the loins. Some persons who were present, strongly advised bleeding him immediately; but however advisable that very popular remedy might be some time after, it would have been very imprudent to have bled him at the moment, for, as I have before stated, he was pale, sickish, and cold *, not caused from any blow on the head. I gave him a mouthful or two of cold water, and applied a wetted handkerchief to his face and temples, which removed the faintness occasioned by the shock he had received, and he was conveyed to his quarters, (we were then on permanent duty with the county yeomanry.) As soon as a sufficiency of water could be heated, he was placed in the hot-bath, which was kept to about 96 degrees, as hot as is agreeable to most people, in which he remained for half an hour. He got afterwards some Epsom salts, as a mild aperient and diaphoretic. Next day he was so well, that he would not submit to any further medical treatment, and in two days after he got on horseback, though somewhat stiff. The swelling and stiffness would, no doubt, have been sooner removed, had he submitted to the application of a few leeches; but as he was averse to their being applied, it was not worth while to insist upon it. I recommended *the hot bath*, from seeing its good effects in many instances during the time I was in India, and having also personally experienced great relief from its use, after a severe fall from my horse, I therefore thought I was justified in recommending the same remedy to my nephew, which certainly proved most effectual. I am afraid you will think this a tedious detail, but I was anxious to give you the particulars of a very simple cure for an accident which is often occurring, particularly to those who are so fond of hunting as my young friend. As you request me to answer three queries, I shall state the questions, and the answers below each.

Queries.

1. Where did you first hear of this remedy, and have you known it of use in other instances?—*Answer.* I frequently saw it used when I was in India, and always with the best effects.

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* There is no greater imprudence than bleeding a person when in this condition from an accident.

2. What is the proper temperature of the water, and how long should the patient continue in the bath?—*A.* The temperature of the bath should be from 90 to 100 degrees, and the person may remain in it from 20 to 30 minutes, according to circumstances.

3. Is there any thing to be attended to but the mere bathing?—*A.* The hot bath is certainly very beneficial of itself, though no doubt it will in general be advisable to give, at the same time, some mild laxative and diaphoretic medicines, to hasten the cure, and, if the injury is severe, a repetition of the bath occasionally."

15. *Swallowing Bones, &c.*—From inattention, accidents of this sort frequently happen. Small bones in general only prove troublesome when they stick in the gullet. Indeed, it usually happens, that although the bone has been swallowed, the impression remains that it is still in the throat. The best plan is, to endeavour to force it on to the stomach, by chewing and swallowing a large mouthful of bread or potatoes. It may however, be necessary, to resort to an emetic, and of course, the case would then be left to a medical practitioner.

If a pin, or any other sharp pointed substance, should stick in the gullet, however painful it may be, it is much better, when extraction proves difficult, to wait the spontaneous loosening of the substance, than to attempt forcing it up.

If a sharp substance have got into the stomach, it is very imprudent to endeavour to hasten its passage through the bowels, by giving any opening medicine. Just the contrary system ought to be adopted. Indeed the best plan is, to take some milk alone, or mixed with eggs unboiled, as by the coagulation which takes place, the substance may become so involved, as to prevent its doing injury to the stomach; and, on the same principle, opening medicines, which render the fæces thin, should be avoided; as, by allowing the fæces to obtain some firmness, there will be the greater probability of the pointed parts of the substance being so sheathed, as to prevent them injuring the intestines *.

16. *Cramp in the Stomach.*—If the life of any person be threatened by a cramp in the stomach, occasioned by drinking cold water, after being much heated, by sultry weather, violent exercise, &c. Dr Currie recommends the application of a bladder, nearly filled with hot water, at 110° or 115° of Fahrenheit, to the stomach; at the same time, any tight parts of dress should be thrown loose, the body kept as nearly as possible at its natural heat; and friction, and other simple modes of restoring life, adopted, till medical assistance can be obtained †.

17. *Cuts.*—For slight cuts with any sharp instrument, the *Riga balsam* is an excellent application; and no family should be without a bottle of so useful a remedy.

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* Parkinson's Medical Admonitions, vol. ii. p. 454.

† Code of Health, vol. ii. Appendix, p. 50.

Such are the most common accidents of a serious nature to which mankind are exposed, and the most likely means of remedying them.

Sect. III.—*Of preventing and remedying Common Disorders.*

There are several ailments to which the human frame is subject, and some of them of a serious nature, which may be either prevented or cured by very simple means. Without presuming to give medical advice, I shall venture to state the result of my own experience, or the substance of some of the communications which have been transmitted to me, regarding a few of the more common disorders.

1. *Sore Throats* *.—Some years ago, the author was extremely liable to sore throats; but being convinced that friction, by strengthening the parts, would prevent such complaints, he applied the flesh-brush, beginning with one of softer materials, and increasing the strength and harshness of the brush, as the skin, from use, was able to bear it. This practice freed him from his complaint. The brush should be applied night and morning, and may be used in three ways. 1. In its common state; 2. Heated before the fire, when the weather is cold and wet; or, 3. After moistening the outside of the throat with spirits. This last mode is only necessary, where a sore throat has made some progress †.

By the use of the flesh-brush all round the ears, many have been cured of deafness, after it had lasted for some time ‡.

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* For the habitual sore throat or quinzy, (an inflammatory swelling of the tonsils and circumjacent parts), which is the torment of many people half their lives, and is generally mistaken for a violent cold, because it occasions a tickling in the throat and coughing, Dr Beddoes recommends the following gargle: Take of pounded galls, three drachms; of boiling rose water, ten ounces. Infuse for three hours, then filtrate, and add of alum three drachms; of spirit of nutmeg or any other spirit, three ounces. Retain a little of this frequently against the very bottom of your mouth, with your head backwards. The strength of the gargle may be varied; and it is often of use, in recent colds, where there is no sore throat. Sucking a piece of galls will sometimes brace the parts, and remove the disposition to this sort of sore throat. *Manual of Health*, p. 221.—Others recommend nitre lozenges. But rubbing the throat with a flesh-brush *without*, and gargling *within*, either with very cold water unadulterated, or mixed with a little rum or brandy, will, in most cases, be found effectual. By far the best application to the throat externally, as a preventive of sore throats, is the mixture of verjuice, (the juice of crab apples), and water, in the proportion of a third of the former; this should be rubbed all round the throat every morning with a piece of flannel.

† I am informed by an intelligent friend, that when the throat indicates symptoms of becoming sore, ulceration may be prevented, by taking some powdered sugar, wetting it with brandy, till it has the consistence of honey, and occasionally taking a tea-spoonful of this mixture; a remedy of this kind however, may go too far, and in inflammatory cases, might prove highly dangerous.

‡ Some penetrating sort of grease may likewise be rubbed on, by a little wool or cotton, in the interior of the ear, when the deafness originates from the hardness of the wax. This, with friction, will probably be found of use.

2. *Colds.*—By tying a silk or cotton handkerchief round the neck, and covering even the mouth and nostrils when out in cold and damp weather, colds will very frequently be prevented.

The Hindoos, who live near *tanks*, or ponds, and who generally sleep in the open air, prevent the mischiefs thence likely to arise, by having, during their sleep, their faces covered with their turbans, which are unrolled for the purpose of covering them.

In Africa, it is a common practice with the natives, when they are exposed to winds supposed to be injurious to the human constitution, to draw down their turbans to cover the nose and the mouth; and when they sleep out at nights, more especially in the autumn, when cold and unwholesome dews are apt to fall, they uniformly cover their faces with their turbans; while the riders on dromedaries, when exposed to the *sirocco*, not only cover their faces, but stuff their ears *.

There seems therefore, reason to hope, that by the adoption of this practice, those who are subject to complaints arising from a cold, wet, and variable climate, may be saved from many attacks of illness. When persons go out of hot and crowded rooms, into the cold open air, it is essentially necessary to take this precaution, for preventing the injurious effects likely to result from so great a change in the atmosphere. And it is hardly requisite to impress upon invalids of every description, the importance of guarding the delicate vessels of the lungs as much as possible, from sudden vicissitudes of climate †.

These observations have been amply confirmed, both by experience and authority. The ingenious Mr Spence of Drypool informs me, that the practice of breathing through a covering to the face, has been found extremely useful at Hull; and Dr Beddoes strongly recommends the same plan, to those invalids, who are afflicted with chronic catarrh, as being likely to enable them to take proper exercise, and to be frequently in the open air, which otherwise they might be under the necessity of avoiding. The great object is, to give heat and moisture to the air we breathe, when it is cold and dry. It is obvious, that the construction of these *muzzles*, (as the Doctor calls them), ought to vary with the case. Each individual will soon find how many folds, of whatever material he may choose to employ, will communicate heat and moisture enough to the air he breathes, without interference with the freedom of respiration. A similar idea seems to have occurred to Dr Hales, who found, that the air might be breathed much longer, when, in the act of respiration, it was made to pass through *mufflers*, or several folds of cloth dipped in vinegar, a solution of sea-salt, or oil of tartar *. Such mufflers would be of particular use in cases of consumption, where the lungs are in so delicate or diseased a state, that they cannot easily bear the action of atmospheric air, without some such defence.

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* A watchmaker in London, whose family connections died of coughs and pulmonary complaints, from a practice they had of always sleeping with their mouths open, even in the coldest weather, and who could not cure himself of that custom, prevented any injury from it, by covering his mouth, when he slept, with a thin silk handkerchief, which he called a hot-bath.

† The best place in winter for invalids is the coast of Devonshire; but as easterly winds prevail there in the spring, the patient should be removed to Bath, Bristol, or Worcester, where these winds are scarcely felt.

3. *Consumptions.*—It would, of course, be vain to attempt here to give any plan for the treatment of cases of consumption. The following short notice therefore, has a view to the prevention, and not to the treatment of the disease when once established. An intelligent clergyman in Scotland, (the Rev. Dr Stewart, now minister of Erskine), who was originally bred to medicine, has recommended a plan, which has certainly succeeded in several instances, when applied at the commencement of the disease. Dr Stewart's remedy is,

A wine glassful of water,
A tea cupful of vinegar,
A desert spoonful of rum.

This mixture to be applied with a sponge, to the neck and chest, morning and evening, for a considerable length of time; and gradually to the whole body. Besides this application, Dr Stewart recommends much exercise without doors; and a nourishing diet, in particular meat to breakfast, and good malt liquor to dinner. When the patient has gained strength, sea-bathing may be tried. This treatment is only intended for cases in which the disease is not established; or in the weakness which follows the active inflammatory period of the disease, when the quickness of the pulse is produced by weakness. When there is acute pain in the chest, a high hard pulse, difficulty of breathing, and fever, nourishing diet would be attended with the worst consequences, as, indeed, would be any ex-medical treatment.

4. *Rheumatism.* — The late ingenious Mr Cumming of Pentonville assured me, that he had cured rheumatism, by a union of friction and electricity. His friend Mr Forsyth had tried electricity in the usual way, *with shocks*, but he had received no material benefit from it. Mr Cumming then proposed to try the effect of electricity on a new plan. Having an electrical machine, he took it to Mr Forsyth's house, and prevailed upon him to stand upon an insulated stool, after pulling off any silk part of his dress. Having connected Mr Forsyth with the conductor of the electrical machine, he became charged with the electrical fluid. When in that state, the hand of the operator being rubbed gently on the part affected, it had the effect of a smart brushing, and the thinner the clothing between the hand and the skin of the patient, the more gentle was the effect. The sparks were rendered more pungent by putting a glove upon the operator's hand, for which purpose, worsted is to be preferred to leather. Silk should not be used. By increasing the thickness of the cloth between the skin of the patient and the hand of the operator, the effect becomes more powerful.

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* Essays, p. 226.—Arbuthnot on Air, p. 105.—Gregory's Economy of Nature, vol. i. p. 416.

In this instance, the relief afforded was beyond expectation. The patient, who had been confined to his couch for some days, was, after the above application, completely relieved, and able to walk up stairs.

It seems now to be established, that the most effectual means of curing chronic rheumatism, and preventing attacks of the disease, is the chamois leather, and, as we have mentioned under the head of clothing, a complete dress of this stuff, ought to be worn by all who can afford it. The leather washes like linen ; only it must not be washed in hot water. The chamois leather feels cold and uncomfortable for the first day or two ; but it soon becomes more comfortable than flannel. The price is about sixteen shillings a set. It is proper to have several sets, and to change them frequently *.

Cod liver oil has, in many cases of inveterate rheumatism, produced most extraordinary effects. It is taken in the quantity of a wine glassful swallowed in the morning, on an empty stomach.

An intelligent friend has communicated to me, the curious circumstance, that pains which were considered to be lumbago, have been frequently and entirely removed, by the use of Rectum Bougee. This, of course, is to be considered as a lumbago, arising in consequence of a stricture in the rectum.

The uses of friction, percussion, champooing, &c. to which we have referred in the body of this work, are very great in rheumatism. It must be kept in mind however, that they are not to be resorted to during the acute state of the disease. I find from Cleoburey's account of Grosvenor's system of friction, that Mr Grosvenor never resorted to friction, until the inflammatory symptoms had been removed.

6. *The Gout.*—I was informed in a letter from a friend, dated 1st December 1814, that, by the advice of a respectable physician, he began, about two years before, to take magnesia for the gout, being a complete cripple. He had taken the French medicine, about ten bottles, which had nearly proved fatal to him. For the first week, he took the magnesia pure, (Godfrey's common magnesia, and not the calcined), ten grains every night in a wine glass of water. He then,

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* Mr Craig of Cally informs me, that in Ireland, they find the following remedy an effectual cure for the rheumatism. Take six drachms of Dwarf Elder and make it into one pint of tea, and add

Mindererus Spirits, half an ounce ;
Sal Polychrest, three drachms ;
Antimonial wine, two drachms ;
Rose water, and syrup of orange peel, each half an ounce.

A small tea-cupful to be taken three times a-day when the stomach is most empty. *Cure for Rheumatism.*—Half a pint of goat's milk, with half a pint of strong decoction of sarsaparilla, sweetened to your liking, and taken as warm as possible, about two hours before rising from bed, encourages perspiration, and a few days will cure. *Rheumatic Pain in the Face.*—M. Double has administered the sulphate of Peruvian bark in several cases of acute pains in the face, approaching to tic douloureux, with complete success. He advises it to be given in a dose of six grains, dissolved in camphorated julep, three times a-day.

by his doctor's advice, added five grains of rhubarb, and never omitted taking it a single night for eighteen months. By that time he found the use of his limbs nearly restored, the fits of the gout more inflammatory, and of very short duration, about thirty-six hours in one place. He now takes the magnesia and rhubarb only once a-week; as he found that, after it had the effect of weakening the gout, it also weakened digestion, which made him leave off the habitual use of it.

If any person, not such a cripple as this gentleman was, wishes to adopt this remedy, he would advise him, to take it only three times a-week; as a preservative, indeed, only once a-week.

Another gentleman also states, that he has experienced the good effects of magnesia in the gout. The quantity he takes is, from fifteen to twenty grains every night on going to bed, in a little water, or milk where it can be had good. As to diet, he no otherwise attends to it, than he should have done, if he had not taken the magnesia, and as every person subject to the gout should, namely, taking little wine, and that of one sort, no malt liquor, and simple food. This gentleman prefers the subcarbonate of magnesia, directed by Mr Brande, to the calcined earth.

I am also informed by an illustrious and aged judge, that he ascribes his exemption from gout, partly to his taking regularly every morning, five grains of rhubarb, and five of magnesia.

Other remedies however, for this disorder, are not wanting. About sixty years ago, an old woman in the neighbourhood of Horsham in Sussex, professed to have a remedy for the gout, which she applied in the form of a plaster. The secret was purchased from her, and turned out to be a common blister. When a blister is used, it ought to be put over the part affected, of the size of from one shilling to half-a-crown piece, being resorted to as near the time of a crisis as possible. Relief is generally obtained in twenty-four hours; and the sore will generally be dry, in three dressings, with Turner's cerate only. Sir B. Shelly applied blisters for nearly sixty years, and at the age of eighty-two, was in tolerably good health. He applied them only to the extremities, having never had the gout elsewhere. He was thoroughly convinced, as was the apothecary who attended him, that there is no danger in the practice.

The Rev. Dr Cartwright was the first person who informed me of this remedy. He happened, in the year 1769, to spend some weeks at Horsham, where he accidentally heard of it. Being assured by a medical person, that it was universally and successfully practised in that part of the country, and that he never knew any bad consequences attending it, he resolved to try the blister in summer 1770, and had the satisfaction of finding, that it completely removed the pain of the gout, in the space of an hour or two, that is to say, as soon as the blister began to operate. The blister was large enough to cover the part affected, and he had never any occasion to keep the blister open after the first discharge. Another person, who tried blisters, on his recommendation, found them equally beneficial; so that it would appear quite a mistaken notion, that the blister either aggravates the pain, or repels it on the nobler parts *; but though the blister cures the fit, it does not eradicate the disease. Dr Cartwright however, was fortunate enough to discover a medicine, which attacks the enemy as effectually within, as the blister does without. Its composition is as follows:

Gum guaiacum, two scruples;
Soccotorine aloes, one drachm;
Camphor, one scruple;
Castile soap, two drachms.

This to be made into thirty-six pills, with any syrup, (as syrup of saffron), two to be taken every night at bed-time. As soon as they are perceived to have a tendency to affect the bowels, they must be discontinued, but resumed when the bowels have returned to their usual habit.

By the use of this medicine, Dr Cartwright, after having had several fits of the gout, was entirely exempted from it *for above forty years.*

Other medicines are much recommended as preventives of gout, as carbonate of soda, scammony and colocynth, leek poultices, &c. But we believe the best preventive will be found, in temperate habits and regular exercise, of course paying attention to the stomach and bowels, in particular by warding off acidity of the stomach.

7. *Chilblains.*—This disorder, though trifling to appearance, and easily cured when attended to early, may be the source of much suffering if not checked in the commencement. If once thoroughly seated, it is apt to recur, while, from the want of exercise which it occasions, a foundation is laid for several more dangerous complaints. Where there is a tendency to this disease, the parts affected should be frequently rubbed with the naked hand, with a flesh-brush, or with flannel, and as much exercise should be used, as circumstances will admit of. If there be no sore, stimulating medicines, such as camphorated spirits, spirits of turpentine, spirits and vinegar, &c. may be applied to the parts affected. Sudden and considerable changes, from cold to heat, should be avoided, and such coverings used, as will defend the parts from the action of cold, and have but little power in conducting heat; as slightly woven woollen, and cotton, or wash leather, which is loose in its texture, and downy on each side †. Wearing socks at night is also expedient.

The celebrated Tissot is of opinion, that cold applications are the best for chilblains. He himself, as many others have been, was attacked with this complaint, from having accustomed himself to wear too warm a muff. His remedy is, to fortify the skin of the hands and feet, *by the application of cold water.* Every morning and evening, from the end of autumn, children in his opinion should be obliged to dip their feet in cold water; and the habit being once established, there will be no difficulty in continuing it throughout the winter. Children should never, he says, be permitted to warm their hands before the fire, immediately on coming in from the cold; nor should boys wear gloves, unless some particular circumstance should require it *.

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* Others have tried blisters for the gout with success, particularly in cases of mere inflammation; but in some constitutions, they are said to produce sores difficult to heal. Leeches have also been tried successfully. An issue in the legs or feet, might, perhaps clear the body of its gouty humours, or draw them to the extremities.

† Parkinson's Medical Admonitions, vol. ii. p. 464.

In general, the use of worsted next the skin, has been considered the best preventive of chilblains; but Mr Callam, of Great Queen-street, Lincoln's Inn Fields, who has a number of children under his care for various complaints connected with the feet, recommends cotton gauze socks or stockings next the skin, as greatly superior. He contends, that cotton gauze will neither produce a sore, nor irritate one, if it has taken place; whereas the friction of worsted causes much itching, and when the swollen parts are rubbed into sores, adheres to them, and produces a lingering ulcer. He strongly advises those who are apt to have chilblains, never to rub their feet or legs, if they itch from cold, as by bathing them with warm vinegar, or putting on at night, a stale beer poultice, or a mustard poultice, any itching may be effectually prevented, with little trouble or expense. Where chilblains are apprehended, the feet should be bathed every night in warm salt water, and after they are thoroughly dried, the cotton socks should be immediately put on to go to bed in. If more warmth be necessary, worsted stockings may also be put on, and may be worn above the cotton, during the day. Equal quantities of sweet oil, lime water and proof spirits, are said to form an excellent application in cases of chilblains.

8. *Deafness.*—The late Mr Grosvenor of Oxford, is said to have been relieved from a state of extreme deafness by the following method: He filled his mouth with tobacco smoke, and closing his mouth and nostrils, he forced the smoke into the communication between the ear and top of the gullet. This process, when successful, is described as being attended with a sudden crack, as it were, in the ear, which is immediately followed by the return of the sense of hearing.

Deafness sometimes arises from enlarged tonsils, (the glands at each side of the root of the tongue), pressing on the tube which leads from the ear to the throat, (the eustachian tube). It is said the application of a strong brine of salt to the swollen gland, and of a strong irritating ointment, such as the tartar-emetic, around the external ear, has proved curative in such cases. The fat of a goose melted and clarified, is said to prove a good application in deafness arising from deficient wax. Almond oil, combined with oil of turpentine, also proves useful. In these cases, syringing occasionally with a solution of soap, should be resorted to.

9. *Complaints in the Eyes.*—I have already stated, in the Chapter

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* See Tissot on Health, p. 467.

on Customs and Habits, the means of removing slight inflammations in the eyes, by means of hot water and steam. It may be proper likewise to mention, that for those complaints in the eyelids, which are so extremely troublesome and inconvenient, the *unguentum citrinum mite* of the Edinburgh Pharmacopœia, is by far the most effectual remedy. It is applied with a hair-pencil, either at night, or, if necessary, earlier. It heals those ulcers whence a humour issues, which irritates and inflames the eyes.

Means of promoting Digestion.—Indigestion may either be temporary or settled; and the remedies must vary accordingly.

Temporary indigestion may be owing to various causes, as, the eating of too great a quantity of food; in that case, the bad effects of it may be prevented by abstinence, and not filling the stomach again, until it has got rid of its former contents. It may also be owing to the bad quality of the food; in which event, the noxious matter must be got rid of, sometimes by abstinence also, but generally by compelling a discharge, either by a vomit or a purge; or it may arise from the hours at which meals are taken disagreeing with the individual *.

A settled indigestion may arise from, 1. Some weakness or disease in the stomach itself; or, 2. A deficiency or error in some of the digestive secretions, as the bile, the gastric juice, &c.

1. Various modes have been thought of for strengthening the stomach. Pure air and moderate exercise may be sufficient. Various medicines also are recommended for that purpose, some account of which it may be proper to give, without however becoming responsible for their success.

In Sweden, the elixir of Dr Jernitz has been much celebrated; and, as a proof of its efficacy, it is said that the Doctor himself attained to the age of 104, his son to 100, and the whole of his family, by the constant use of it, lived to a great age. Numbers also in that country are said to have received great benefit from it †.

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* Mr George Robertson, from the hurry of business, was one day unable to get a breakfast, and found himself so much the better of wanting that meal, that he has ever since, for about twenty years, taken nothing but a cup of coffee, without bread, for breakfast. But he dines at two o'clock, according to the old fashion. He never complains of indigestion now, with which formerly he was much troubled.

† The following is the receipt for making this elixir, which was given me by a friend. It has been tried in England, and found serviceable to the stomach; and, by strengthening that important organ, it is said also, to render persons less liable to catch cold.

Receipt for making the Elixir of Longevity.

One ounce and one drachm of aloes, one drachm of zedoaria, one ditto of gentiana, one ditto of saffron from the Levant, one ditto of fine rhubarb, one ditto of theriaque of Venice.

Reduce the five first-mentioned drugs to powder, and let them pass through a sieve; afterwards put them into a bottle, with the theriaque, and throw into it a pint of good brandy; stop the mouth of the bottle well with wet parchment, and when it dries, prick several little pin-holes in it, and put it up carefully for

An intelligent French author, (D'Aubenton), has written a short tract on the subject of indigestion. He observes in that work, that the human body has its periods of growth, of full vigour, and of decay; and that the exercise of all its functions depends, not only on the daily state of the body, but also on its periods, as connected with all the different ages of life. Digestion in particular, follows the general law; its agents are weak in infancy, but they grow stronger from day to day: they acquire all their strength in youth, they subsist in a virile age, they begin to diminish in the age of decline, they grow much weaker in old age, and they are almost extinguished in decrepitude. It is at the commencement of decline, which, according to circumstances, varies from the fortieth to the forty-fifth, and even to the fiftieth year of each individual, that the stomach begins to require peculiar care and precaution. People who have been subject to indigestions before, have them then more frequent and violent; and those who almost never experienced them before, except on some very extraordinary occasions, begin to feel them, even from slight causes. Sedentary people are particularly subject to these complaints.

The remedy proposed by M. D'Aubenton is, ipecacuanha in powder; the dose depending upon the quantity that will not excite any symptom of nausea, but sufficient to excite a slight sensation of the vermicular movement of the stomach, by which the phlegm may be separated and expelled from that organ. There are some people who can take to the amount of two grains without nausea, and others who cannot take more than a third or fourth part of a grain. It is proper to begin with a small dose, and to augment it gradually, if it is necessary, until the point in which the action of the remedy begins to be felt.

The ipecacuanha which he recommends to be taken, is the brown sort commonly used in medicine. The most favourable time for ta-

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nine days, taking care to stir it well. On the tenth day, let the infusion be poured out gently into another bottle, as long as the liquor continues clear. The bottle containing this infusion, must be well stopped with linen. Afterwards, pour a second pint of brandy upon your drugs, for a second infusion, which you will leave other nine days in the bottle, well stopped like the former, and stirred well in the same manner. You must pour it, on the tenth day, into another bottle; and when you perceive that the liquor is no longer clear, put cotton into the funnel, and filtrate it several times, if necessary, *to have it quite clear.* Do not forget to put a piece of linen over the funnel, that the spirit may not evaporate. The two infusions should be mixed together, in a well-stopped bottle, and you may make use of it immediately.

Directions given for use.—For sickness at the stomach, one spoonful, *quite pure;* for indigestions, two spoonfuls in four of tea; for drunkenness, two spoonfuls, quite pure; for colics, two spoonfuls in four of brandy; for fits of the gout, during the fit, and particularly when it is getting up, three spoonfuls, quite pure; for worms, one spoonful before eating, for eight days; for the dropsy, one spoonful in white wine, for a month; for intermitting fevers, a spoonful quite pure, before the cold fit; and, if the fever be not cured by the first or second dose, it will undoubtedly be so by the third. The only precaution necessary, while taking this elixir, is, to eat nothing raw, to take neither milk nor salad, and not to go too much into the open air.

king it is in the morning, fasting, or an hour or two before breakfast. The powder may be put in a spoonful of water or wine, or taken in the pulp of a roasted apple, or in sweetmeats, or lozenges.

The object of this remedy is, to clear off the phlegm or slimy matter which disturbs the action of the stomach. The secretion of the digestive liquor, or the gastric juice, is thus promoted, and the source of indigestion is removed.

D'Aubenton adds, that he had proved the effects of it, and that the remedy had surpassed his most sanguine hopes: indeed, he is said to have prolonged his own life, notwithstanding a naturally delicate constitution, to the age of eighty-four, by the use of this medicine; and he recommended it to many people, to whom its use proved very beneficial *.

It is well known, that the French in general, pay particular attention to the state of the stomach, not only on account of its importance with a view to health, but also as a means of greater enjoyment of the pleasures which the table affords. I was therefore extremely desirous to ascertain, what system was accounted the most beneficial, by the luxurious inhabitants of Paris, for preventing indigestion; and the following is the result of that inquiry.

The first rule is, for each individual to study well the nature of his stomach, which may be very strong in some respects, and very weak in others; for so capricious is this organ, that it can digest, with ease, ten times more of one food than of another. In general indeed, it is not so much the quantity, as the quality of the food, and the manner in which it is dressed, which occasions indigestion. It is therefore asserted by the most experienced *gourmand* of modern times, (M. Grimod de la Reynier), that if you masticate well, and for a long time; if you will divide thoroughly, with the assistance of stale bread, every sort of food, particularly the more compact; if you will never swallow but small morsels of meat at a time, and only mouthfuls of liquor; and if you will add, *le coup d'apres*, *le coup du milieu*, *le café et les liqueurs*, you will seldom find yourself incommoded, even by the longest and heaviest dinner †.

This doctrine must doubtless be more acceptable than the ipecacuanha powders of M. D'Aubenton; and it is certain that the French, by following these or similar rules, notwithstanding their made dishes, and their luxurious mode of living, are less frequently troubled with indigestions than the English, though, in general, they eat much greater quantities both of animal and vegetable food. They retain also their vivacity, and their good humour, till a very advanced period of life.

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* See Mémoire sur les Indigestions, qui commencent à être plus frequentes, pour la plupart des hommes, à l'âge de 40 ou 45 ans. Lu à la Société Royale de Médecine, le 26 Oct. 1784, par M. D'Aubenton. A translation of this interesting tract has been published, by Dr Buchan of Percy-street. An eminent physician has given the following formula for ipecacuanha pills for stomachic purposes:

Take of Powder of Ipecacuan, one scruple;
Powder of Rhubarb, two scruples;
Of Syrup, enough to form twenty pills; of which let one be taken every night at bed-time.

† Almanac des Gourmands, seconde année, p. 286. The *coup d'apres*, is a glass of generous wine, after broth or soup. The *coup du milieu*, is a glass of rum, or other spirits, in the middle of your dinner.

Bile, phlegm, and other crudities, must be more apt to collect in the stomach during the night, than in the day-time. In order to rid the stomach of the secretion thus accumulated, it has been proposed, that a large tumbler of hot or of cold water should be taken every morning, when the stomach is empty [*]. A person who had been accustomed to drink Tunbridge water for that purpose, from the use of which he had derived much benefit, being prevented from going to the wells one season, drank a quantity of water, taken from the pump of a spring in his own garden, which did him as much service as that of Tunbridge, which induced him to write the following lines on his pump-well:

Steel is a cheat;
'Tis water does the feat [†].

At the same time, the chalybeate and other ingredients, and the fixed air with which mineral waters generally abound, enable the stomach to bear greater quantities of them, (which in some cases is useful), than otherwise it could do.

Elixir of vitriol, (diluted sulphuric acid), is accounted an excellent medicine in many cases of indigestion, weakness of the stomach, or want of appetite. From 15 to 20 drops of it may be taken twice or thrice a-day, in a glass of wine or of water. It may likewise be mixed with the tincture of the bark, one drachm of the former to an ounce of the latter, and two tea-spoonfuls of it taken in wine and water, as above directed. It must not however, be too frequently repeated.

Chalybeate waters, if drunk in moderation, are generally of considerable service in cases of indigestion; and persons who are afflicted, either with indigestion or want of appetite, cannot do better than to repair to Cheltenham, Harrowgate, Scarborough, Moffat, Peterhead, Pitcaithly in Perthshire, and other places of public rendezvous. The very change of air, exercise, and the cheerful company to be found in watering places, will be of service [‡].

Pharmaceutic preparations of iron, as the muriated tincture, the sulphate and the carbonate of iron, are much depended on in the treatment of dyspeptic complaints.

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[*] This however, is only a palliative; and the drinking repeated doses of hot water, for indigestion, and pains in the stomach, (a practice which some have adopted), has injured many stomachs. It is customary with the natives of India, to induce vomiting regularly every morning, so as to empty the stomach of the remains of the previous day's food.

[†] Smith's Curiosities of Common Water, p. 82.

[‡] Buchan's Domestic Medicine, p. 392. I am informed by an intelligent member of the medical profession, that he has found the Pitcaithly waters particularly useful in promoting digestion; favouring the flow of bile, without an adequate quantity of which, digestion cannot go on, while headachs and obstructions may be the result.

For stomachic and nervous complaints, a tea-cupful of chamomile tea every morning, or every other morning, has been recommended *. It should be a cold infusion from the flowers, carefully dried in the sun, and not on copper-plates. When properly managed, a course of this medicine will often prove useful. But bitters of all kinds, when persevered in for a considerable time, are apt to injure the stomach. This is a class of medicines therefore, that requires much caution, when dyspeptic complaints, arising from weak digestion, are to be treated. A celebrated medicine for the gout was offered some years ago to the public, under the name of the *Portland Powder*. It was composed chiefly of bitters; and though it was known to alleviate, and even to cure the gout, it was always at the expense of the constitution †.

Bitters however, in moderation, may be safely taken; at least that has been found to be the case in France. It is certain, that stomachic complaints and nervous disorders, are not so common at Paris as in London. The coolness of the regimen, and the care so strongly recommended by the medical profession in France, to keep the bowels in a tranquil state, may tend to obviate these complaints. But when they do occur, the products of the orange tree are regarded as the chief specifics. The ladies carefully collect the leaves of the tree, of which they make an infusion. Candied orange-peel likewise, is regarded as a *calmant*, or medicine fitted to tranquillize the system; and the spirit distilled from the flowers, as the only liquor which calms and soothes, instead of agitating the nerves. White wine is forbidden in such cases; but red wine, which is esteemed a corroborant, is allowed ‡.

In cases where the stomach has been oppressed by phlegm, an infusion of horse-radish has been found a powerful alterative; and, as such, was strongly recommended by an ancient physician §.

In stomachic and other complaints, the virtues of rue and of saffron have been much celebrated by Sir William Temple; but they ought to be taken in moderation. He recommends rue as of great use, in all those diseases of the stomach, which proceed from cold or moist humours, and as a great digester and restorer of appetite; it is also said to dispel wind, and to promote perspiration. But saffron he extols, as, of all others, the safest and most simple cordial, and the greatest reviver of the heart, and cheerer of the spirits, insomuch, that he thinks it cannot be of too common use in diet, any more than in medicine. The spirit of saffron, he says, is, of all others, the noblest and most innocent, and yet of the greatest virtue. He has known it restore a man out of the very agonies of death, when left by physicians as wholly desperate. But the use of this, and all other spirits, ought to be employed only in very urgent cases, lest it should extinguish the natural heat of the stomach [*].

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* It is said that chamomile tea, if allowed to stand any time, becomes deleterious.

† Trotter's Essay on Drunkenness, p. 101.

‡ Pinkerton's Recollections of Paris, vol. i. p. 299. In nervous and hypochondriac diseases, so common in Britain, and which the French would often treat as mere indigestions, the use of heating medicines will generally increase the malady, while the blood and nerves should be tranquillized and refreshed by a cooling regimen.—*Pinkerton's Recollections of Paris*, vol. ii. p. 393.

§ See a letter written by *Diocles Carystius*, to Antigonus, one of Alexander's successors, in Paul. Æginet. ad finem. This is one of the most curious remnants of antiquity. In it, Diocles furnishes that monarch with an excellent regimen for preserving his health, in the different seasons of the year; and marks out such symptoms as usually precede approaching disorders, and in what manner they may be most effectually prevented.

An author who was much troubled with indigestion adopted the following plan with success. For common tea, he substituted tea made from orange-peel, a little sweetened to make it palatable, and diluted with milk. Dinner and supper, his only other meals, were confined exclusively to animal food, either boiled or roasted, quite plain, with a little potatoe, to which vegetable he restricted himself for twelve months. His principal difficulty was, in regard to drink. Wine of any kind, and port in particular, turned acid upon his stomach, and *there was the great evil* [†]. He therefore used sparingly, a little mild and sound porter as an aperient, and some spirits and water, generally rum or geneva, but in a small quantity, for fear of over-stimulating. As soon as he found that the stomach could bear it, which was, he thinks, in about two months, he gladly exchanged the spirits and water for a little sherry; and as soon as he found that his stomach could bear port wine, he looked upon himself as quite cured; for this fluid never becomes *heavy* according to the vulgar phrase, that is, *turns acid*, but on a weak stomach. He found that fish was more disposed to turn acid than flesh. He has ever since been free from such attacks, which he in part attributes to keeping the intestinal canal regular, or rather open, not by medicine, but by an aperient regimen, particularly by a moderate use of fruit, in which he can now with safety indulge, and which he considers to be, in that point of view, one of the greatest blessings bestowed on man [‡].

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[*] Sir William Temple on Health and Long Life. Code of Health, 2d edit. vol. iv. p. 354. The Irish usquebaugh is rendered a more powerful remedy for the gout by being mixed with saffron. For indigestion, the following medicine is recommended by the most respectable authority:

Three ounces of *Epsom salts*, three drachms of *Cream of tartar*, two drachms of *Polychrest salts*, mixed together, and inclosed in a large-mouthed phial kept corked. A large tea-spoonful to be dissolved in a glass of warm water, and to be taken early in the morning.

"The thing that gives me the highest spirits, (it seems absurd, but true), is a dose of salts, I mean, in the afternoon after their effect." See Moore's Life of Byron, vol. v. p. 264; and also foot note. See also Mr D'Israeli's Curiosities of Literatnre, for facts and illustrations of effects of medicine.

[†] Acid elixir of vitriol is said to be a sovereign remedy in cases of this nature.

[‡] It has been found by experience, that the best sort of diet when a person is troubled with costiveness, is barley bread, and still better, barley-meal porridge, with milk. It is light and easily digested, extremely wholesome, and

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No. XIII.

PERNICIOUS EFFECTS OF FERMENTED LIQUORS.

(From the New London Literary Gazette.)

Although wine was invented to make glad the heart of man, and although a moderate and prudent indulgence in it, can never excite reprobation, or cause mischief, still the sin of drunkenness is an extensive and beastly evil. Not only does it demoralize, debase, and finally destroy its unhappy victim, but it renders him incapable of performing the common duties of his station, whatever that station may be, and constitutes him an object of disgust to others, and of pitiable misery to himself. It is well to talk of the bacchanalian orgies of talented men, and call them hilarity and glee. The flashes of wit, the brilliancy of genius, the rank and the fame of the individual, no doubt increase the fascination of his failings. But however bright and wonderful may be the corruscations of his genius, while under the influence of wine, his frame is debilitated—tottering—imbecile—when the stimulus of the potation has subsided. Stimulus, in a certain degree, is necessary to sustain the strength, and invigorate the frame of the toiling man: and the best proof of its good effect is, the comfort and energy which it imparts; but if this necessary stimulus be exceeded, then it is abused, and every mouthful in addition becomes poisonous in its ultimate effect. The first physical effect which we find produced is, upon the internal vascular coat of the stomach, as we may learn from the warmth which is evident to our sensation. The repetition increases the circulation of the blood, which seems, as it were, to dance through the veins; the pulse becomes quick and full, the eyes sparkle, and the imagination is quickened; in short, the whole frame is replete with excitement, as is evident in every word, look, and action.

Very speedily a new effect is produced. The brain and its nerves, oppressed by the load of blood thrown up into the head, and irritated through their quick sympathy with the stomach, oppressed also by the powerful pulsation of the larger arteries connected with them, become in a degree paralyzed; the tongue moves with difficulty, and loses the power of distinct articulation; the limbs become enfeebled and unsteady; the mind is deranged, being either worked up into a fury, or reduced to ridiculous puerility; and if the stimulus be pushed even farther than this, absolute insensibility ensues, with vomiting and apparent lifelessness.

As the stomach is the receptacle of the poisonous fluid, it is one of the first organs which become affected with its virulence. Nausea, flatulence, heartburn, with all the usual and most prominent symptoms of indigestion, occur; more especially loss of appetite, the food taken

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supposed to be a great antidote to bilious complaints. The flour or meal of pot or pearl barley, is preferable to any other.

by a confirmed sot, being scarcely sufficient, apparently to sustain life. The liver, with the other glands of the body, sympathise in the derangement, and the bowels become irregular in their action, being, for the most part however, exceedingly relaxed. The brain also participates in the consuming injury sustained by the other parts; and if there be not actually headach, there is a dizzy, muzzy, disagreeable sensation, inducing a desire to doze, and rendering the individual heavy, dull, and listless. A sure symptom of this effect upon the brain, and an unerring characteristic of the condition of the patient, is a partial paralysis of the upper eye-lid, giving to the eyes an appearance of sleepiness. This is a far more certain symptom than blotches on the face, and more common in occurrence; and an experienced medical practitioner, will frequently detect the propensities of the patient, by this appearance alone. These structural derangements, may proceed for some time without proving fatal; the termination depending, of course, upon the strength and stamina of the patient. Very often however, some serious affection of the liver, or brain, will occur, which, by its extent and intensity, destroys life very rapidly. It is a common thing for persons addicted to drinking, to die suddenly from apoplexy.

A habit of drinking, once acquired, can rarely be abandoned. A gentleman of great eminence in the metropolis, and most deservedly respected and beloved by his professional brethren, once informed us, that he had never heard of more than two instances, in which a thorough reformation was effected.

No. XIV.

REGULATION OF THE BOWELS.

Galen has called bleeding and purgation the two legs of physic. The first ought certainly to be cautiously administered; and purgations, though less dangerous, ought not to be rashly prescribed [*].

The pernicious effects resulting from the abuse of purgative medicines, are certainly great. They affect not only the stomach and bowels, but the system at large.

Purgatives are of two sorts, lenient and drastic. Manna is an example of the one, and scammony of the other [†].

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[*] Celsus says, " Sed purgationes quoque, ut interdum necessariæ sunt; sic, ubi frequentes sunt, periculum afferunt." Lord Bacon has some useful remarks on preparations before purging, and settling of the body afterwards.—*Code of Health*, 2d edit. vol. iv. p. 285.

[†] An intelligent friend has sent me the following observations on the subject of purgatives:

" When the lacteals are scoured, and their mouths are in a condition to absorb,—nutrition, with increase of strength, cannot fail to be the consequence.

In giving purgative medicines, the articles should be so combined, as to excite and strengthen at the same time. Thus, rhubarb, columbo, and *kali vitriolatum* (sulphate of potass,) may be given together, or an infusion of gentian with senna, or tincture of rhubarb *.

A course of purgatives for reducing corpulency, for bilious complaints, or any other disorder, ought to be very cautiously adopted, and never without the best medical advice. Many have died from injudicious practice in this respect †.

"In the choice and exhibition of cathartics in the human frame, much attention and discretion are required.

"The drastic purges act as hydragogues, and do not increase the strength. They pass rapidly through the alimentary canal, produce a copious discharge of lymph, but they do not carry off that viscid mucus, by which the lacteals are clogged in various cases of disease. These drastic cathartics are gamboge, scammony, jalap, &c.

"The most efficacious deobstruent we possess is calomel. Two or three doses, of from three to five, six, eight, or even ten grains, given at night, and at proper intervals repeated, carry off viscid mucus beyond any other cathartic with which I am acquainted. In the exhibition of this medicine, with this intention, the use of acids must be for the time prohibited, because they would make the calomel too active, and defeat our purpose. The intervals of exhibition should be three or four days.

"Next to calomel, colocynth seems to have most power in cleansing the first passages; and next to this comes senna.

"After calomel, rhubarb strengthens the digestive organs, and restores their tone; but as it is apt to induce costivenesss, this may be prevented by aloes, which is likewise a powerful detergent.

"Were I to give the observations I have had an opportunity of making during forty years, on the efficacy of cathartics in preparing the digestive organs for nutrition, and in thus restoring strength, they would fill a volume.

"Nature seems to have abandoned the alimentary canal to our prudence and discretion. This, undoubtedly, is the part most accessible, not merely to food, but to medicine also; and no medicine can exert its influence, unless it can come in contact with the living fibre. This however, is apt to be covered by a superabundance of viscid mucus. The design of nature, in the provision of mucus, discharged from appropriate glands, is to prevent attrition and abrasion, the consequence of which would be adhesions.

"But unfortunately, by some neglect, by some excesses, or by some error in the non-naturals, these glands are frequently relaxed, and pour forth a superabundant quantity of mucus, which render the living fibre, inaccessible to such medicines as might restore tone to the system. This, then, must be removed, that having gained access to the living fibre, we may administer such medicines as the occasion may require.

"This has been the foundation of my practice among the poor, and, to a friend, I may venture to say, that I have had remarkable success. They apply to me in time, and I very seldom lose a patient."

* Abernethy's Surgical Observations, p. 65, where there are other useful observations regarding purgative medicines. If the stomach is disordered, but not in a very violent degree, the following mixture may be taken with great advantage: One tea spoonful of best rhubarb—two ditto of magnesia—one table spoonful of brandy—three table spoonfuls of warm water—mix the whole thoroughly together with a little sugar. It may be taken either at night, or very early in the morning; and unless the stomach is very much disordered, the patient will be so well recovered the next day, or the same day, if taken early in the morning, as to have a hearty appetite for dinner.

† Adair's Essay on Diet and Regimen, p. 115. Two cases are there men-

The nature of the remedy for costiveness ought to change with the age of the individual. The late Earl Howe had been accustomed, for twenty years, to take Glauber salts as a laxative for habitual costiveness; but it was found too cold a purgative when he got old *.

When medicine must be taken, some recommend gentle doses of rhubarb twice or thrice a-week; but, without the mixture of some other article, as magnesia, it is apt to be binding †. Others have strongly recommended sulphur ‡, and it is said that the odour which it is apt to give, may be entirely prevented by steeping it in water for some time §.

As far as my own experience goes, when the stomach requires a constant aid, a table spoonful of white mustard seed, taken at bed-time, in milk, is an old but useful remedy, the whole seeds acting slowly and gently; or, one spoonful of castor oil, one of brandy, and one or two of water, in which some sugar has been melted, form a useful dose. By some, taking the castor oil, in warm milk, without brandy or water, is preferred.

These hints are given with diffidence; but it has been well observed, that in serious diseases the advice of an able physician is indispensable; life, however, is often rendered unhappy by slight maladies, for which simple remedies are the most effectual ||.

Instead of medicine, some are accustomed to take glysters, what the French call *Lavemens de precaution* ¶; and many, by the use of them at a stated hour, have brought on a regular habit of evacuation. Asclepiades, and some others of the ancients, were of opinion, that glysters were sufficient in most distempers. They influence the

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tioned, of persons who died from an injudicious course of purgatives. A case is also mentioned, of a lady who, for removing costiveness, had proceeded from the weaker to the strongest purges, but whose stomach and bowels were restored to their former power, solely by the use of Bath waters in large doses.

* Trotter's Essay on Drunkenness, p. 116.

† An intelligent physician, (Dr William Wright), has recommended the following pills as an excellent remedy against costiveness:

Aperient Pills.—Take of Aloes, (Socc.) two drachms; of Gamboge and Spanish soap, each a drachm and a-half; of Calomel, 15 grains. Mix them well with sufficient syrup, to make them into a mass, and divide into 54 pills. One at bed-time, to be repeated occasionally.

Some have found the following cathartic draught of service:

Infusion of Senna, an ounce and a-half; Tincture of Senna, 2 drachms; Tincture of Jalap, half a drachm; Syrup of Roses, one drachm. Mix.

‡ The uses of sulphur, both for stomachic and other complaints, are not perhaps so generally known as they ought to be. An intelligent correspondent has transmitted to me the following particulars regarding it: 1. He has prescribed it successfully for rheumatism. Boiling water was poured upon sulphur, and after standing twenty-four hours, the liquor was drank. The patient was, at the same time, dressed in flannel, and abstained from salted meat. This has completely answered, when other remedies have failed. 2. A gentleman, he adds, was cured of the gout by taking sulphur and China oranges.

§ Sennertus recommends a strange remedy for costiveness; that of walking barefooted on a cold floor. See Strother's Essay on Health, p. 338.

|| Pinkerton's Recollections of Paris, vol. i. p. 302.

¶ Le Medecin des Hommes, p. 406.

mass of blood; for they quicken the pulse, and facilitate the secretions of sweat and urine. They ought however to be mild, so as not to irritate the intestines *.

In a recent publication, the use of glysters of cold water has been strongly recommended for costiveness, when occasioned by parched extremities, or in slow fevers; and such injections, it is said, have not only given relief when the stools were costive, consisting of hard lumps covered with mucus, but they have also prevented that constricted state of the bowels, by which the hardened feces seem to be formed †.

Before concluding the subject of purgative medicines, it may be proper to make some observations on a doctrine inculcated by the celebrated Lord Bacon, that nothing contributes so much to health and long life, as frequent and domestic purgations; and also to state some opinions recently published, recommending drastic purges as the most effectual remedy for various disorders.

Lord Bacon's position is, "*Nil tam ad sanitatem et longevitatem conducit, quam crebræ et domesticæ purgationes.*"

It is a common observation, that few men are strictly temperate when they sit down to pleasant food. Hence it comes to pass, that want of health is a frequent attendant upon affluence, because the rich are disposed to exceed the bounds of moderation, and to overload the alimentary canal. In such circumstances, the best preservative against disease, is to hasten the discharge of this superabundance from the body, by some slight cathartic, such as may give relief, without impairing the powers of digestion.

As we advance in years, moderation becomes more and more essential to the preservation of health. When we have arrived at our full growth, the quantity of food should be diminished; because one principal purpose of the increasing demand has been completely answered, and nothing remains to be provided for, but the daily waste.

Nature herself suggests to us the necessity of temperance, and provides a remedy against repletion. For, as from our infancy, till we arrive at maturity, the number of teeth are constantly increasing, and with our increasing years, new grinders are produced; so, when we have reached our acmé, the last acquired teeth are the first in their decay, and in our decrepitude, not one tooth probably remains.

It is well understood, that plethora produces palsy. Next to occasional abstinence, or habitual temperance therefore, no remedy can be so effectual as that recommended by Lord Bacon, the "*Crebræ et domesticæ purgationes.*"

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* Old people however, should be extremely cautious not to live always upon the same laxative food, or to take *the same purgative remedies*, lest, becoming too familiar to the body, they may not always have the same effect.

† Manual of Health, p. 282, 283, &c. In page 284, it is stated that the lively Duchess of Burgundy, who was the Rosalind of the court of Louis XIV, was accustomed to take a lavement previous to her going to the theatre. Some intelligent physicians are of opinion, that they ought to be more used in this country than they are, being *simple, prompt*, and, if properly administered, *active*. No house ought to be without one of the newly invented self-acting injecting syringes.

So much for plethora, and for the diseases attendant upon it, as their immediate cause.

But independently of this, should the intestines themselves be overloaded, various diseases must be the consequence. Among these, and not the least formidable, is to be reckoned apoplexy, so fatal to both young and old, who, beyond the bounds of moderation, indulge their appetite for food.

Acute diseases are commonly attended by inflammatory symptoms, at least at their commencement; and these never fail to be aggravated, when the intestines happen to be loaded with undigested sordes. Hence, on their first attack, the expert physician is ever anxious to begin his operations, by evacuating the alimentary canal. But, frequently it happens that he is called in too late:—the strength of the patient has been exhausted by the disease; and the whole class of evacuants must then be most sparingly applied.

Now, had the patient either been sufficiently temperate in his quantity and choice of food; or had he been in the habit of cleansing, from time to time, the alimentary canal, by domestic physic, he would not stand in need of powerful evacuants, such as the cautious physician is unwilling to apply.

We shall now proceed to the other point that remains to be considered, namely, the exhibition of powerful purgative remedies in disease.

An eminent physician some years ago published a valuable work on purgative medicines, in which he remarks, that by preserving at all times the regular alvine evacuation, we would prevent the formation of various disorders altogether; and that purgative medicines, properly applied, are the best means of curing them. The facts he adduces, serve very strongly to corroborate the doctrine he wishes to establish *.

Dr Hamilton observes, (p. 6), that the constipated and loaded state of the intestinal canal, is a common cause of general bad health; often accompanies and aggravates the other symptoms of fever; is the immediate source of various disorders peculiar to children and young people; and also occasions other serious complaints, which arise in mature age, and in the decline of life †.

It is necessary, he justly remarks, for those, who either wish to preserve good health, or who are in quest of the lost treasure, to attend to, and to regulate their alvine evacuations ‡.

It may be proper, he adds, on some occasions, to propose to them, to forsake the haunts, and habits of fashionable life, to leave the crowded city, alluring amusements, or serious occupations, conducted in airless, or even in tainted rooms; to shun luxurious tables, indolence,

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* See Observations on the Utility and Administration of Purgative Medicines, by James Hamilton, M. D. p. 140.

† I have found a purgative of use in colds, when the stomach was loaded with phlegm.

‡ P. 7.

and late hours; to retrace the footsteps by which they have deviated from simple nature; and to court the country, pure air, moderate exercise, and simple diet *.

This advice however, often cannot be followed; and even when it is, it will not always remove unhealthy costiveness, and the mischiefs which proceed from it. In this case, as well as in the costiveness which accompanies disease, the interposition of purgative medicines is necessary.

No. XV.

DR SCOTT'S NITRO-MURIATIC ACID BATH.

The late Dr Helenus Scott kindly favoured me with the following answers to my queries relative to his bath:

Question 1. "Who first suggested the plan of mixing nitric or muriatic acid with water for bathing?"

Answer. After I had become acquainted with the effects of nitric acid taken internally, I often had reason to lament, that I could not, by the stomach and primæ viæ, fill the constitution more abundantly with this acid, than it is possible to do by drinking it in a diluted state. This suggested the idea of mixing it sufficiently with water, and employing it as a bath for the legs or the whole body. From the facts which regard absorption, and which every body knows, I did hope, that it would be taken up by the absorbent vessels, and produce those changes, of which, from its internal use, I knew it to be capable. I soon found that my conjecture was not without foundation; for by bathing the whole surface, or even the legs, I found, with some patients, that I could produce a redness and some swelling of the gums, and a great flow of saliva, effects very much resembling those which arise from the calces of quicksilver. Although this resemblance is so strong, yet I found, that in many respects, the effects of the acidulous bath, are materially different from those of the preparations of mercury. The bath reddens the gums, and somewhat enlarges them, yet I never knew an instance, in which it gave rise to fœtor of the mouth, or to that distressing ulceration which are the consequences of mercury. I have indeed from the acid seen the ptyalism very plentiful, and remain for eight or ten days successively.

I may here observe, that the acid I have always used for bathing, was really a nitro-muriatic acid; but to this I was led by accident rather than by design. I procured my acid, by distilling it from common unpurified Bengal saltpetre, by the intermedium of alum. It is evident, that this was an acid, (or aqua regia), in which the nitric acid predominated, but mixed with a proportion of muriatic acid. As I was pleased with the effects of this acid, it is the only one that I employed during my residence in India; and even for internal use, my acid has always contained a proportion of muriatic acid. I now suspect that this is very necessary.

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* Hamilton's Observations on Purgative Medicines, p. 7.

Question 2. "Has the acidulous bath been found of use in any disorders, and what are they?"

Answer. To answer this would require a volume. I shall shortly say, that I have found it useful in several disorders. Where the bones have been foul from syphilis, with disease of the skin and glands of the absorbents, I have seen the happiest effects from it. I believe, that in some of those cases, the fatal poison of lues v. still remained active in the habit. Others will say, that it merely assisted in renovating a broken down constitution, as acids are known to do. Although it is always important to know the truth, yet in many cases of this kind, it is immaterial whether it renovates a much injured habit, or destroys the virus.

It seems to be useful in scrofula; at any rate, it is far from injurious.

I have employed this bath a good deal, and with advantage, for obstructed menses.

There is a disease, not very uncommon in India, where the mouth and throat, and I suppose the whole intestinal canal, becomes aphthous, or full of little ulcers. The nutriment is not absorbed, and the patient gets much emaciated. After long suffering, this, even with young people, proves a mortal disease. In a very bad case which occurred in a friend of my own, after the failure of all the remedies that for a long time were employed, he was restored to perfect health, by using the acidulous bath. While using it, he drank at the same time, as much of the nitric acid as he could, very much diluted.

I have employed this bath very largely, and with advantage, for the chronic disease of the liver.

I need hardly say, that it is useful for several diseases of the skin, such as ring-worms, itch, &c.

Question 3. "Is it preferred, using the acid with hot or cold water?"

Answer. I have used it both hot and cold, nor do I know that the temperature has much influence on the effects of the bath. I have commonly made it moderately tepid, as being more agreeable, and more supportable by the sick.

Question 4. "What are the proportions of acid and water made use of?"

Answer. The proportion of acid should depend chiefly on the sensibility or tenderness of the skin. I have commonly mixed such a proportion as should produce a little pricking or smarting in the tender parts of the skin, after being in the bath for a quarter or half an hour. Such a degree of strength seems to be desirable, but it ought never to be carried farther, or we should for a time be obliged to stop the use of the bath altogether.

I have employed for bathing the body or the legs, wooden vessels, just large enough to receive it or them, and *nothing more.* A bath for the whole body, with a sufficient quantity of water, will in general be sufficiently acidulated by an English pint, or a pint and a half, (a pound, or pound and a half), of the common nitrous acid of the shops. But the quantity must be varied, as I have said, by the sensibility of the skin, and other circumstances. Such a bath will taste about as sour as weak vinegar, but in this no great accuracy seems to be necessary. It might be inconvenient, or somewhat expensive, to lose the acidulated water after bathing. I have therefore warmed a portion of it in glass vessels, for the purpose of making the next bath tepid, or, for the same end, I have plunged into the bath when prepared, some closed bottles or jars filled with boiling water, which I remove after they have communicated their heat. More commonly I have thrown away a portion of the acidulated water, and in order to warm the bath for the next bathing, I have mixed with it a sufficient quantity of boiling water, and about eight ounces of fresh acid. The advantage of making the bathing vessel of a small size will thus be evident.

Question 6. "Is there no risk attending the practice?"

Answer. None. I know of no agent in nature capable of making so material changes in the human frame with so little harm or commotion. The only effect or inconvenience that I have yet met with, is the ptyalism, (effusion of spittle), that comes on in some cases, and even that is not attended with the same inconveniences, or disagreeable circumstances, that arise from mercury. It is necessary however, to observe, that whenever the nitric acid is used, either for internal or external purposes, it should never be allowed to touch any metallic substance, for it dissolves the metals, and forms injurious compounds with some of them.—Glass or wood ought to be employed.

Question 7. "Is it ever used for the purposes of cleanliness, and what are the proportions?"

Answer. I have myself often used it for the purpose of cleanliness, and for this it has several advantages over common water. It seems to clean the skin like soap, rapidly removing every sort of dirt or sordes. If a bath of this kind is prepared, it may be kept as long as we please, even in hot climates, without ever becoming in the least offensive. It is at the *end* of a month as sweet and agreeable as in the first hour.

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It may be proper to add, that the good effects of the acidulous bath, will much depend on its right management, which can only be acquired by attention and experience. The patient may remain in it, from five to twenty minutes, as he finds agreeable.

In regard to the acidulous bath for the purpose of cleanliness, either cold water may be used, or heated to 96 degrees of Fahrenheit. The best proportion is about two ounces of nitric or muriatic acid, to three gallons of water. Great care must be taken, not to have the water too hot, which may occasion accidents.

The late Mr George Bell, surgeon, considered sponging the body with Dr Scott's solution of nitro-muriatic acid, of great use, in the general debility of dyspeptics.

Headachs.—I am indebted to a respectable lady for the following most interesting account of a mode practised in the East Indies for curing headachs.

" A native Doctor attached to Colonel Allan Macpherson's battalion of Sepoys, on the Bengal Establishment, had cured several gentlemen who belonged to the suite and escort of the late Colonel Upton, Ambassador from the Supreme Government of India to the Court of Poona, of severe headachs.

" After the return of the escort, this circumstance having been reported to a lady in Calcutta, who was affected with headachs of so violent and excruciating a nature, that the most serious consequences were apprehended, she was induced to permit the native doctor to apply his remedy. He desired that she should recline herself across a bed, with her head over, so that it was lower than the side of the bed. He then applied a little cotton to the mouth of a small phial, containing a liquor of a tint somewhat resembling the colour of lemon-juice. The cotton having been thus wetted, he squeezed three or four drops of this liquid into each nostril. After remaining in this posture a few seconds, he asked her how she felt; and, upon being informed that she had an inclination to sneeze, he desired her to raise her head, which was no sooner done, than a torrent of clear water rushed from her nostrils, and from her mouth and eyes, into a bason, in greater quantity than she would venture to state, but certainly not less than might suffice for washing the hands. Her headachs never returned. The only injunction the doctor gave was, that she should avoid animal food, and beware of catching cold for a few days. Her husband was present when this cure was effected, and underwent the same experiment soon afterwards for headachs less severe, and with the like effect, excepting that the discharge from the head was less copious. All the entreaties that could be used to procure the receipt were ineffectual *."

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* Colonel Macpherson confirms the success of this application ; and adds, that he could never prevail on the doctor to give him the particulars of this mode of cure, though he had often asked him. There is reason however, to hope, that the nature of this remedy may be ascertained. The late Dr Valangin used frequently to cure headachs, by desiring the patient to snuff up a mixture of the yellow oxide of mercury, (formerly called Turbeth mineral), with a little sugar. It often produced a prodigious discharge of serous fluid from the nose, without sneezing. Dr Buchan of Percy street, to whom I am indebted for this information, has often cured obstinate complaints in the head, by the same means. I am informed, that the Chinese have a medicine called Po-ho-yo, which is similar in appearance, and produces similar effects to those described above.

No. XVI.

ON THE IMPROVEMENT OF MEDICINE, BY COLLECTING POPULAR REMEDIES FOR COMMON DISORDERS*.

I WISH much that it were possible for me to do justice to this most interesting subject; from the full conviction, that if it were properly stated, *and brought home to the feelings of mankind in general*, it would greatly promote the happiness of the human race.

Many persons, and among them several respectable physicians, entertain a very humble idea of the medical art. Others, of great knowledge and experience, are of a different opinion, and consider it to be a humane and noble science, by means of which, much good may be effected. But whatever may be the case at present, there is every reason to believe, that if medicine were brought to all the perfection of which it is capable, there are few common disorders that might not be alleviated, or even cured †. For that purpose however, it would be necessary to discover the popular remedies used in this, and in other countries, and to have their effects fairly tried, and fully ascertained.

In regard to domestic cases ‡, an intelligent physician informs me, that he has long wished to see a publication, containing an account of such popular remedies as have stood the test of long experience.—Very early in his professional life, his attention was attracted to this subject, by witnessing the cure of a sore leg, by an old woman, in the course of a fortnight, which had baffled the skill of more than one experienced surgeon for many months. By the same method, of which it cost him no small degree of trouble to obtain the knowledge, he has frequently succeeded in curing the same species of bad leg, where others had failed. Since that period, he has omitted no opportunity of acquiring a knowledge of popular remedies; being convinced, that practical medicine is chiefly founded on experience, and that no mode of cure, can have long stood the test of experience, without some foundation. He adds, there is a woman now in Westminster, who has frequently succeeded in curing cases of that dreadful disorder in the face, called "*Noli me tangere,*" which usually proves fatal; but she will not disclose her method.

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* The progressive amelioration of health, which Sir Gilbert Blane has proved from authentic public documents, is one evidence that the practice of physic has already improved. It appears from the returns of 1800, that the mortality of all England and Wales, was then one in 45; but in 1810, it proves to be only one in 49. (See the third volume of the Medico-Chirurgical Transactions, published by the Society in London). This gives reason to hope, that medicine may be still more and more improved.

† The medical art is still but in its infancy; and it is impossible to foresee to what perfection it may yet reach, not only in consequence of the improvements daily made in chemistry, but also of those which may be made by the discovery of new and valuable plants; and indeed the new uses to which old medicinal plants may be applied, and which public protection and encouragement would soon bring to light.

‡ It is astonishing by what accidents cures may be discovered. A nurse at the Westminster Infirmary, far advanced in years, had been for a long period subject to an asthma. She was employed by the surgeon of the hospital to rub in mercury for a venereal complaint, and by the time the operation was completed, the effects of the asthma ceased. The surgeon has since prescribed, with success, small doses of calomel for asthmatic complaints, in the cure of which he is successful. In an old medical book, entitled " An Essay on External Remedies, by R. Kennedy, Chir. Med." printed in London, anno 1715, the author says, p. 74, " I have also given mercurial preparations with very good success, *for the asthma.*" This proves that useful practices are given up and neglected. Kennedy was a great traveller, and in this work has a chapter, " Of the Variolæ or Small Pox, the manner of ingrafting or giving them, and of their cure." He there mentions, " That it was then a custom in some parts of the Highlands of Scotland, to infect their children, by rubbing them with a kindly pock, as they term it." See p. 157. A respectable person informed me, that a person affected with asthma, received the most decided relief from a hare's skin, fastened round the neck with a piece of tape, with the fur inwards

But such improvements in medicine are not confined to this country: in others, important discoveries may be made, a knowledge of which would greatly tend to promote the progress of the medical art. If the attention of mankind were directed to that object by public rewards, new discoveries might be the result; there being few disorders, probably, for which nature has not provided a remedy, either in the vegetable or in the mineral kingdom. That so much has been already effected, considering that this branch of the art of medicine has hitherto received but little public countenance or encouragement, is a matter to be wondered at. To the credit of this country, there is one exception; a liberal sum having been voted by parliament, to the celebrated Jenner, for having promulgated the means, which had been accidentally discovered in Gloucestershire, of preventing, by vaccination, the ravages of the small-pox, and for having confirmed the practice, by successful experiments.

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One circumstance to be attended to in regard to popular cures in general, is, that there are not only great varieties of the same disease, but of constitution; hence, what may answer in one species, or individual, may not succeed with others. The shades of difference, which, though minute, are often important, can only be distinguished by the experienced physician. It is extremely desirable therefore, in every case where a cure is effected, that not only the remedy, but all the circumstances of the case, should be described with as much accuracy as possible.

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upon the breast, He thought it owing to electricity, but he observed, that during night his breast was covered with perspiration.

No. XVII.

ON THE PRESERVATION OF SIGHT.

Translated from an addition made to the Code of Health and Longevity, by Dr Sprengel, in his German edition of the Work.

" The translator deems it necessary to treat this most important sense in a chapter of its own, since the neglect of dietetic rules is, in his opinion, as common as it is injurious. The translator himself, in his early years, suffered severely, not only from weakness of sight, but from other diseases of the eyes ; and he is happy to say, that he enjoys now, in his 42d year, a much sharper and better sight than in his youth. It is only by attending strictly to the following rules, that he has succeeded in strengthening his eyes, in so much, that he can exact from them now much more than when in his 20th year. It principally depends on the measure,—on the time,—and on the manner of labour we exact from the eyes, either to weaken them or to preserve them for a long time. It does not injure our eyes, to look upon small objects at a proper distance, if we but take care, neither to move our eyes too quick, nor to fix them too long on one point. Constant and quick reading therefore, enfeebles the eyes more than writing, because in the former, the eyes are moved more frequently and quicker. He therefore, who alternately reads and writes, injures his eyes much less, than he who constantly reads. For the same reason, it is very good to have from our window a distant view, because the fatigued eyes rest with pleasure, and with advantage, on distant objects. To fix the eyes on one object, is as injurious to them, as moving them too rapidly. This happens chiefly in observations through magnifying glasses, telescopes, and microscopes. He who is obliged to resort to these, should choose only the morning hours, for his observations, and let him only do so on fair days, when the sun shines through his windows, and let him temper the too dazzling sunlight, by a paper screen. Those microscopes are the best, which give to the objects the necessary clearness. All greatly magnifying lenses concentrate the light too much on a single point, and have too weak a light, so that they injure the eye. Hence lenses with a lesser focal distance, are more injurious, than those whose focus is more distant."

" To look for a long time and constantly, through magnifying glasses and microscopes, is not advisable. We ought, in the interval, to allow the eye to recover from the fatigue, by letting it rest on distant objects ; nor is it good to close one eye, whilst observing with the other ; it is best to change. Much depends also, on the mass of light which surrounds us. It is as improper to work with our eyes by bright full sunlight, or by the dazzling light of many candles, as it is injurious to do so in the twilight, or by a weak glimmering lamp, or in dull winter days. Every one feels the inconvenience arising, when reading in sunshine, or where there are too many windows, as in a green house. The study of a scholar and artist, must not admit therefore, too much light, but must be constructed, that the light should moderately fall on the writing desk. In respect to the time of the day, the morning and forenoon hours are the best for study, and after dinner, and particularly in the evening, nobody will much fatigue his eyes without injuring them. It is always better, as the elder Pliny did, to rise and to work early in the morning, than to sit up late at night: for the hours before midnight are the most refreshing for sleep. To sit down immediately after rising from bed, to a work which fatigues the eyes, is very improper, because the long rest during the night, has made the eyes very susceptible, and the least application will then weaken them. It is very agreeable and advantageous, immediately after rising, to wash the eyes with cold water, and then to walk for half an hour in the open air, strengthening the eyes, by letting them rest on distant objects. The translator has followed this rule for ten years, with infinite advantage. In winter, some domestic employment may suppersede the walk."

"Much depends also on several circumstances in the application of the eyes. He that studies much, must avoid every thing that effects too great a tendency of blood to the head. All heating liquors, indigestible food, particularly in the evening, will disagree with him. He must not lie horizontally in bed, but must raise his head very much: he must wear no narrow or tight clothes; he must not, in working, hold his head in a low position, but sit at his working table straight, or alternately stand at his desk."

"He who works much with his eyes, and in general, every one who has reason to take care of them, should strictly avoid any sudden transition from darkness to light. Nothing is more injurious to sight, than to sleep in dark chambers, and immediately after rising, to go into dazzling day-light. It is also improper to sleep with your face towards the window, particularly when the morning sun shines through it. Beer, (a celebrated German oculist), relates thereof a melancholy instance. The same excellent oculist blames, with justice, the rubbing of the eyes after awakening, by which inflammation is easily excited."

"The enjoyment of the open air is indispensable to the preservation of sight: hence we ought to take care to admit it as often as possible in our studies. Exhalations of animal excrements injure much the eyes; hence the proximity of water-closets, and the placing of night-chairs in the bed chamber are very hurtful to the eyes. It is understood, that we ought to avoid strong winds as well as dust. But it is improper to protect ourselves from them by means of eye-glasses, which are never so close as to prevent the wind and dust from getting into our eyes; and even were they so, they do more injury by the inclosed air, which heats, and is hurtful to the eye."

"The fashion of wearing glasses is highly injurious to the sight. Short-sightedness is not so common as many imagine. He only is really near-sighted, and requires concave glasses, who cannot recognise the features of a man three steps from him, and who cannot read a pretty large print at the distance of a large span. Such a man requires, when he is obliged to look into a distance, concave spectacles, but which must be arranged for each eye in particular, as it is rare that one eye has the same power of sight as the other. The custom, not to put down the spectacles, even at dinner, is ridiculous. Convex spectacles are only necessary, when we are not able to recognise near objects, and must view them from a distance, when near objects appear to flow into one another. In such cases, spectacles, which however, must not be too convex, may be of good service; yet they must not be of green glass. All so called preservers, are to be rejected."

No. XVIII.

DR CLUTTERBUCK ON APOPLEXY.

From the Lancet.

The mode of *attack* of apoplexy, is considerably different at different times. Sometimes it is sudden and unexpected. The patient, uttering perhaps an exclamation of some unusual or painful feeling in the head, drops down insensible, without previous complaint. *In general however*, (and probably the same would be found in all cases, if minutely examined), *the approach of the disease is indicated by certain premonitory signs, with which it is desirable that every one should make himself acquainted;* because by endeavouring to obviate and relieve them, the attack may sometimes be warded off, and the disease altogether prevented. These signs consist, for the most part, of some imperfection or disorder in one or other of the *sensorial functions;* such as imperfect or irregular *vision;* deafness, or noise in the ears; numbness, or unusual sensations in the limbs; weakness of the voluntary muscles, often observable in the muscles of speech, rendering articulation difficult; impaired memory, or other of the mental faculties; an unusual disposition to sleep *(lethargy)*, and *incubus* or *nightmare;* in some cases violent and long-continued, or frequently repeated headach, precedes the attack of apoplexy. In general, in apoplexy, the pulse is full and strong, and beats slowly. Sometimes it does not deviate materially from the natural state. In extreme cases, the pulse is small, feeble and irregular; and, in these, the disease in general quickly proves fatal. *Respiration* corresponds for the most part with the action of the heart: if this beats slowly, *respiration* is commonly slow also, and accompanied with *stertor* or loud snoring. There is occasionally *deep sighing*. The pupils are mostly dilated, but sometimes the reverse. Sometimes they are observed to be dilated and contracted alternately, in quick succession, and without the influence of light. The face is generally flushed, and often bloated in appearance; and the features are relaxed. The stools and urine are sometimes discharged involuntarily. The *duration* of the apoplectic state is very various. Sometimes, even though complete, it goes off in a few minutes; or it may continue for many hours, or even days. But if there is no remission of symptoms for twenty-four hours, the disease commonly proves fatal. Sometimes, again, the stupor takes place gradually, and increases from hour to hour till it becomes complete. In this case also, the patient generally dies. Apoplexy rarely occurs at an early age, nor in general till after the middle period of life. A very large proportion of old people die of apoplexy; which is often occasioned in them by slight and trivial causes. The form of body may predispose to the disease; as a large head, short neck, and great corpulency. A sedentary and luxurious mode of living, long and intense thinking, especially when attended with anxiety of mind, and habits of intoxication, are also among the *predisposing causes*, and serve to account for the more frequent occurrence of apoplexy in men than in women.

The celebrated Dr Broussais founds his system of treatment on the effects of the *piles*, which prevent all disorders in the head and other complaints. He therefore recommends, once a month, or once a fortnight, as the case may require, the application of leeches to the same part, so as to extract the blood from the head, the number ten or twelve; and after they are off, you are to sit on a *chaise percé* with hot water, for an hour and a half, so as to lose about a pound and a half of blood in all.

No. XIX.

ON THE EMPLOYMENT OF ROASTED OR BAKED POTATOES AS A SPECIFIC AGAINST THE SCURVY.

In a valuable French publication *, it is asserted on the authority of persons entitled to credit, that living upon potatoes, is not only a preservative against the scurvy, but will cure it after the disorder has been caught. It is recommended to take them roasted, and without any seasoning; but it would answer the same purpose, to have them *baked in kilns*, by which means they would keep for a considerable length of time, even at sea. The Docteur Boché tried the effect of this diet on some sailors afflicted with that malady, and he found it "*a specific*," for by that means he cured individuals to whom the most accredited medicines had been given in vain.

As roasted potatoes are the most effectual, the remedy probably greatly depends on some of the substances existing in the black liquid which they contain, and which remains in the potatoe when roasted or baked.

This is a subject which cannot be too strongly recommended to the attention of those who are anxious to preserve the health of our seamen; and it is suggested, that experiments should likewise be tried, at our hospitals, to ascertain, whether the same remedy is not also applicable to the land scurvy.

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* Traité de la Pomme de Terre, par Mess. Payen et Chevalier, p. 137.

Potatoes baked, or dried in a kiln, (similar to that employed in drying oats for mealing), are brought into a state highly nutritious. When roasted in this manner, the crude juices in the raw potato are dissipated.

No. XX.

ON THE USES OF CHAMOMILE TEA *.

The merits of this invaluable remedy, and the proper mode of taking it, are not sufficiently known.

It gives an appetite, and is of use in all complaints connected with the digestive organs. It likewise relieves pain, when applied externally.

After a debauch, there is nothing so likely to restore the functions of the stomach; and even in gouty and bilious cases, it may be taken with great benefit.

There are two sorts employed in medicine, besides a variety of others.

1. The double flowered, or the Roman, which is best calculated to be used for strengthening the stomach; and, 2. The single flowered, or the species generally cultivated in Scotland, which is best fitted for an emetic.

An ounce of the flowers of the first, will make nine cups of chamomile tea, for the use of a family; but for a single person, half an ounce is sufficient, as the fresher the tea is made, the better; indeed, it should never be taken when long kept. A tea-cup in the morning, or in the middle of the day, is generally enough; but it may be necessary to take it thrice a-day, in the morning, at noon, and at night.

The flowers should be put into a tea-pot, and *boiling* water poured over them. The tea should be taken *quite cold*, and a little bread afterwards, to remove the taste, which however, soon ceases to be disagreeable.

In gouty or bilious cases, take at night, or early in the morning, one or two tea-spoonfuls of *common magnesia*, in a tea-cupful of chamomile, and it will correct the acidity.

Care must be taken that the chamomile has not been dried on copper plates; and occasionally, its use ought to be intermitted, that it may be of more service when it is had recourse to.

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* Chamomile belongs to the genus *Anthemis*, and the natural order *Synantheræ*. There are nineteen varieties, but the common, or Sweet Chamomile, called "*Anthemis nobilis*," is to be preferred. Of this there are two sorts; one with double, the other with single flowers. See Martin's edition of Miller's Gardener's Dictionary, *voce* "*Anthemis*." Before the introduction of bark, chamomile was frequently employed in the cure of intermittent fevers. Cullen's Materia Medica, vol. ii. p. 78.

It would be desirable to cultivate the double flowered, more extensively than is usual at present; and to procure the seed of as genuine a sort as possible.

Having sent the above hints to a General Officer in the British army, who, I was informed, had derived much benefit from the use of chamomile, he favoured me with the following particulars, detailing the origin and progress of his experience in the use of that plant:

" Better than twenty-five years ago, I was so extremely ill with a stomachic complaint, that walking in a street, I could not look up to the second floor, or even to the top of a fruit-wall in a garden, without a hold of something, otherwise I should have fallen down. I was thence led, when in London, to consult the late celebrated Doctor Warren, who prescribed to me, to take for *breakfast*, two or three of the *double* chamomile flowers *, with the *least* bit of the paring, or skin of a lemon, infused in a tea-pot, to be drank, with milk and sugar, *exactly as tea is used;* and to drink *pretty strong chamomile tea*, *quite cold*, about mid-day. In a very short time, I found the most beneficial effects from these practices; and only about a dozen years ago, gave up the breakfast, but never gave up, *nor ever will*, the use of the *cold* draught of chamomile tea, when my stomach is in the least indisposed. I always take however, a little salts, or three or four grains of calomel, the day before; and I have uniformly experienced a good appetite from the use of chamomile, after taking it for two days, when before it had quite failed me.

" I should not however, do justice to the plant, if I did not likewise mention, that being on duty, for about two years in the West Indies, every night before going to bed, I put on the *outside* of a window having a northern aspect, a *large* tumbler of the tea, made pretty strong, which I drank off about four or five o'clock next morning, before mounting on horseback. This I regularly did, every morning, during my whole stay there; and to this I attribute my excellent health, during the whole time I was there.

" My having escaped the yellow fever, and even the common fever of the country, during my residence in the West Indies, may have been owing to the use of chamomile; for the most experienced physicians, who had practised there for forty years, assured me, that these dreadful maladies arise, from the neglected state of the bowels. Such disorders therefore, may be prevented, when the digestive powers of the stomach are invigorated by the use of chamomile."

P. S.—Chamomile is not the least valuable stomachic in our Materia Medica. The infusion, drank warm, is an emetic; but taken cold, is a good stomachic and tonic. If made over night, it will be fit the following morning. I think a little grated ginger *infused with* the chamomile, will be an improvement in your case.

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* These are sometimes called the *Roman.*

No. XXI.

ON HEALTH.—SIR JOHN SINCLAIR'S QUERIES TO DR PATERSON, AND THE DOCTOR'S ANSWERS.

Question 1. Why should persons advanced in life, abstain from wine?

Answer. Because wine excites the blood-vessels in the brain to excessive or inordinate action; and in old age, their coats having become rigid, or even ossified, there is great danger of their rupture, by which apoplexy or palsy must be the result.

Question 2. What occasions decay in the faculties of old people?

Answer. The decay of the faculties of old people seems to arise from the increasing hardening of the brain, the organ of communication between the mind and the body. Ruptures of vessels in the brain, produce palsy of those parts of the body, to which the nerves proceed, from the spot that has been ruptured. Apoplexy arises from a large effusion from ruptured vessels.

Question 3. What principally occasions the death of aged people?

Answer. The principal causes of death in aged people are, apoplexy, palsy, and disorders of the stomach and bowels; more rarely inflammation, or infraction, or rupture in the lungs.

Question 4. Is not opium, where that drug is used, as destructive as wine to old people?

Answer. Opium is more destructive than wine, and operates in a similar manner on old people.

Question 5. Is not smoking highly injurious to old people?

Answer. Smoking is highly injurious to old people, and operates in a similar manner as opium and wine.

Question 6. Is not taking snuff, in particular scented snuff, to be avoided, from its stimulating effects on the brain?

Answer. The taking snuff, and in particular scented snuff, produces similar effects.

Question 7. Whether would you recommend, 1. Plain water; or, 2. Whey; or, 3. Milk, with, or without the cream, as the best drink for old people?

Answer. Plain water is certainly the most natural and proper drink for old people. Whey or milk may be drank by those who have been accustomed to them, and with whose stomachs they agree. Cream is certainly to be avoided in old age.

Question 8. Is there any other kind of liquor, that might be taken, as drink for old people, with safety, as ginger beer, spruce beer, raspberry vinegar and water, &c.?

Answer. Ginger beer, or spruce beer, ought to be taken in very moderate quantities by old people, the extrication of the gases in the stomach from them, being productive of uneasiness and inconvenience to old people. Raspberry vinegar may be taken in small quantities, largely diluted with water.

Question 9. Is not tea, being less stimulating, better for old people than coffee?

Answer. Tea is much to be preferred to coffee for old people.

Question 10. Is not the warm bath of use to old people? At what temperature? Is not salt water better than fresh? How often should it be used?

Answer. The warm bath is highly serviceable to old people, and tends powerfully to promote longevity, chiefly by counteracting that constantly increasing rigidity in all parts of the body, which is the invariable effect of old age,—the temperature ought to be from 90 to 96 degrees of Fahrenheit's thermometer.

Question 11. Is it right for old people to take ice?

Answer. No old person ought to venture to take ices. By occasioning a sudden chill in the stomach, they have frequently produced apoplexy or palsy.

Question 12. Are malt liquors to be recommended for old people, and of what sort?

Answer. Only the mildest and weakest of malt liquors ought to be permitted to old people, and to those only who have been long accustomed to them, and whose stomachs and bowels agree well with them.

Additional Hints.

1. Old people ought not, on account of their age, to refuse to submit to blood-letting, either by the lancet, or by cupping or leeches, when judged necessary by their medical attendant; as this evacuation is often the only means by which death, from accumulation in the brain or lungs, can be averted.

2. It is of the highest importance, to keep the bowels in old people quite regular; but the mildest means, in regard both to diet and medicine, ought to be employed, for the severe operation of a purgative often proves fatal to old age.

No. XXII.

1. *On the Means of curing slight Feverish Complaints.*

The following plan has been found a safe and effectual mode, of removing the feverishness which arises from exposure to heated rooms, late hours, mental fatigue, and other circumstances of a similar nature.

Having filled a deep jug with *cold water*, and bared the arms, the hands, and as much of the arms as the jug will admit of, ought alternately, but slowly, to be immersed in the water, and while the one hand is held up, *and exposed to evaporation*, the other should be undergoing ablution. This process should be continued, until each hand has been twenty or thirty times under the water. The more slowly the submersion is carried on the better, as the heat is most copiously given out, when the surface of the water comes in contact with the skin. When the feverish attack is slight, this process, (repeated if necessary), will generally be found sufficient to remove the complaint. When the symptoms are more obstinate, ablution with cold water, on the same principle as the above, may be applied to the head, using a large spunge, or a wet towel.

In feverish attacks of a more obstinate character, spunging the whole body, with weak vinegar and water, will be found a most valuable means of removing, or relieving the symptoms.

Washing the mouth frequently with *cold water*, and using it repeatedly as a gargle, is not only very grateful in feverish attacks, but has been found a valuable adjuvant to the above mode of cooling the skin.

2.—*On the Means of preventing Sore Throats and relieving Coughs.*

As numbers are liable to be troubled with sore throats, during the damp and variable weather which accompanies the change of seasons in this country, any preventive of such troublesome, and often serious complaints, is a most desirable discovery. The following lotion has, in this case, been found useful, probably by giving tone to the throat, and rendering it less liable to suffer from any sudden alterations of temperature. Mix verjuice and spirits of any kind, in equal parts, and let a portion of the lotion be rubbed into the skin of the throat every morning, (or oftener, if found necessary), with a piece of flannel.

Verjuice is the acid of the crab apple, and is much superior, for strength and efficacy, to common vinegar, which is generally made use of for the above purpose.

When persons are troubled with a cough, the mouth should be frequently washed, and *the throat gargled*, with water slightly warmed, or with warmed milk and water. This is a means of fomenting, as it were, the sensitive, and, (for the time being), the morbidly irritable top of the windpipe, and it acts very effectually in loosening the adhesive defluxion, which is often, in these cases, particularly in the morning, so difficult to get rid of. The mouth is thus kept in a very pleasant state, any defluxion is got rid of, and the cough greatly relieved.

3.—*On the Means of preventing the Lumbago.*

It is hardly to be credited, on what trifling circumstances good health depends, and how often this greatest of earthly blessings is sacrificed to fashion. Thus, rheumatic affections are frequently produced in this country, by fashionable reductions in the nature and quantity of wearing apparel. The lumbago, in particular, may in general be ascribed to the absurdities of fashion, invented by the tailor, and sanctioned by the public.

The waistcoat was originally intended to cover the lower part of the body. In front it extended to the top of the thighs, and behind, completely covered the loins. But it has gradually been cut down, so as to be now little better than an ornament, while the coat, as if to render the scantiness of the waistcoat more decidedly injurious, has had its waist raised, and its skirts reduced. By these ill-judged fashionable follies, every breath of air reaches the haunches. And that part of the body, which is peculiarly liable to rheumatism, is injuriously exposed to cold; yet that disorder, when it has established itself in the system, particularly in the shape of lumbago, is not easily expelled.

The following hints are submitted to the consideration of those who wish to protect themselves against that complaint. The modern waistcoat is not only in general made so short, that it does not cover the waistband of the breeches, but its back is composed of such slight materials, that, were it longer, it would be of little real use in protecting the loins. This garment, then, should be restored to its proper length, and its back should be made of a warm substance, and even lined (more especially if there is any predisposition or hereditary tendency to rheumatism) with chamois leather. In short, this piece of dress ought to be restored to its original purpose of covering the abdomen and the loins. The bowels would thus obtain additional protection, and the lumbago would be as rarely felt now, as it used to be in former times.

4.—*On relieving Weaknesses in the Ankles and Wrists.*

It is well known, that numbers are afflicted with weaknesses in their limbs, by which their health is not only impaired, but they often suffer in their various professional avocations; and the writer of these hints, having found great comfort and advantage from the following method of treating these complaints, he is very anxious that it should be generally known.

The method to be adopted, in relieving complaints in the ankles, when the assistance of an attendant can be procured, is as follows: The heel is placed in the hands of a servant, who, by gradually, but firmly, pressing with his two thumbs the muscles round, and more especially those below the ankle, not only strengthens the parts, but also promotes the circulation of the blood in its return to the heart. Where assistance *cannot be had*, the process may be performed, though with less advantage, by the patient himself.

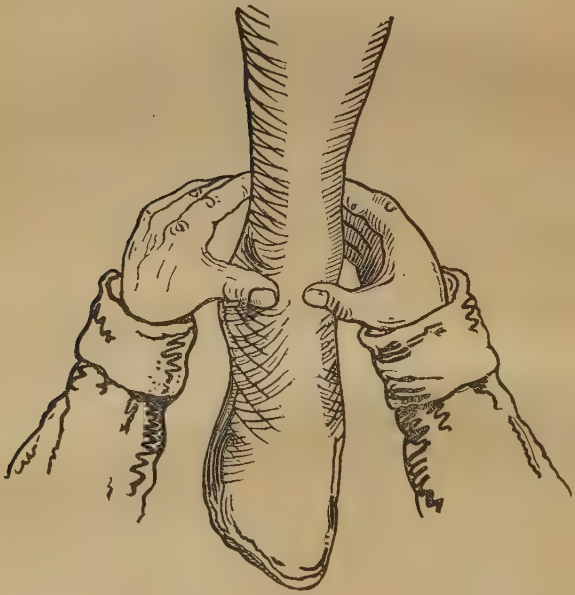
Complaints in the wrist can, in general, be remedied, if the sufferer will press and champoo the joint, with the fingers.

The following receipt, (which was procured from Mr Jackson, the celebrated pugilist), is the lotion used by boxers, when they have any complaints in their joints or ankles, and may be applied with advantage, in the more serious affections of those parts, where pressure alone is not found sufficient.

Spirit of thyme,	℥j.
Oil of turpentine,	℥v.
Opodeldoc,	℥ij.
Joint oil,	℥ij.
Old vinegar,	℥iv.

Half a gill of brandy to be mixed with the above articles. To be well rubbed into the pained or weak part, two or three times a-day.

Sketch of Method for removing Weaknesses in the Ankles.



Directions.

The stockings are to be kept on, and the muscles about and under the ankles to be pressed slowly but firmly, by the thumbs of the attendant.

No. XXIII.

ON A RATIONAL MODE OF EMPLOYING TIME, FOR INVALIDS, OR PERSONS ADVANCED IN YEARS.

To rise, " *on an average*," at half past 7 o'clock, (at 7 in summer, and 8 in winter) ; and to dedicate half an hour to dressing, (which should always be done before breakfast), and two hours to business and study.

To breakfast from 10 to 11 o'clock; (that meal should never be hurried over.)

To be employed from 11 to 1, in business or study, and from 1 to 4, in exercise, visiting, and out-door amusements.

To return to business or study from 4 to 5.

From 5 to 6, at dinner.

After dinner, to take " *a siesta*," or to repose for about an hour on a bed or couch *, (a practice highly beneficial to the invalid, and the aged).

From 7 to 8, at tea.

From 8 to 10, business.

From 10 to 11, domestic conversation and music.

After spending about half an hour in undressing, go to bed at half past 11, and take, on an average, 8 hours' rest.

Thus the day is, in general, divided as follows :

		Hours.	
1. *Business and Study.*—	Before breakfast,	2	
	From 11 to 1,	2	
	From 4 to 5,	1	
	From 8 to 10,	2	
			—7
2. *Meals.*—	Breakfast,	1	
	Dinner,	1	
	Tea,	1	
			—3
3. *Dressing, Exercise, &c.*—	Dressing in the morning	0½	
	Exercise, and visiting in the forenoon,	3	
	Evening relaxation, and undressing at night,	1½	
			—5

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* The coat, the waistcoat and trowsers, (but not the drawers), should be taken off, and any tight parts of the dress should be loosened. The body should be slightly covered, and all light excluded. Nature teaches animals the advantages of a *siesta ;* for after feeding, they commonly lie down. If taken after dinner, it greatly promotes its digestion. The body is much refreshed by it ; there is a placidity felt over the whole frame ; the intellect becomes clear, and is again fitted for mental labour.

4. *Sleep.*—The siesta,	1	
The night's rest,	8	
		—9
		Total, 24[*].

It is incredible how much mental labour may be gone through, in the course of 12 months, by a constant and regular application of 7 hours per day, to study and business, if the labour is divided, and too much is not undertaken at a time. By adopting also, a regular system in regard to meals, exercise, and sleep, in the manner above explained, perfect health, and excellent spirits, may at the same time be secured. In short, the "*mens sana, in corpore sano*," may be enjoyed in the greatest perfection.

Of course, on Sundays, the above plan must be varied, for the purpose of attending Public worship in the morning; and in the evenings of that day, from 10 to 11, should be employed in Family worship.

P. S.—From the advantages to be derived by a careful attention to the above division of time, which was drawn up in the 76th year of his age, the author hoped, that he would be able to live a few years longer, without any material diminution of personal strength, or of mental power.

No. XXIV.

ON SHAMPOOING.

By a Friend.

"AN expedient, neither known or understood in this country, but generally used in India and the Levant, as a luxury, and often resorted to as a remedy, is in very high estimation. The operation is performed by people regularly trained to the office, called *shampoo-men;* and to be agreeable, must be done with art. It consists in gently pressing and turning the body, rendered previously supple and pliant by warm and vapour bathing. The shampoo-man causes the following joints to crack without any trouble; the wrist, the elbow, the shoulder, the vertebræ of the neck and of the back, the instep, the knee, and the hip; and he performs this task as if he were a perfect anatomist. When last in the Mediterranean, I saw and submitted to the operation, which was done in the usual manner. To effect the purpose in the dorsal vertebræ, the shampooing attendant was placed upon a low chair, and made the bather sit upon the ground before it. Putting the knee against the concave part of the back, and laying hold of both shoulders, he suddenly pulled them backwards, and at the same time gave the body an oblique siddling motion, which caused the dorsal articulations to crack, with two distinct explosions, nearly similar to the report of a small pop-gun. As this was done with much expertness, the sensations were singular, and for a moment rather disagreeable. The shampooing attendant then began to knead the limbs, grasping, pounding, and gently squeezing the flesh, with the whole hands, like so much dough, from the extremities to the centre, thereby removing every sensation of pain, and concluded the business by putting on a camel-hair glove, and by rubbing the skin briskly, which took from it all the porous atheromatous obstructions, and rendered it soft and smooth as satin."

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[*] The author, when young, used to study from 10 to 12 hours *per* day, and to devote only 6 hours to sleep. But it is necessary, as age advances, to diminish the hours of study, and to increase the hours of sleep; and at 80, he is convinced, that the hours of repose should be increased to about 9, and of mental labour decreased to about 7 hours *per* day.

"The sensations after steeping and macerating a long time in warm water, and in steam, after the process of shampooing, *are certainly very different from sensations of weakness*. They are delightful; for in the bath, health is admitted at every pore; while the latter process imparts to each particular joint its full freedom and all its latitude of motion *. The whole gives an ease, a pliability, a suppleness, and an activity equally invigorating to the mind, and to the body, which may serve both to correct the vulgar *prejudice of the* "*relaxing effects*" *of warm bathing*, and to confirm the justness of the inference the ancients drew of the *mens sana* from the *corpus sanum*.

The following rules in regard to travelling, were given by Dr Samuel Johnson to Mr Perkins, the great London brewer.

1. Turn all care out of your head as soon as you mount the chaise.
2. Do not think about frugality; your health is worth more than it can cost.
3. Do not continue any day's journey to fatigue.
4. Take now and then a day's rest.
5. Get a smart sea-sickness, if you can.
6. Cast away all anxiety, and keep your mind easy.

This last direction is the principal. With an unquiet mind, neither exercise, nor diet, nor physic, can be of much use.

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* The use of the *dumb bells*, common in India, the *quin querlia*, and projectile exercises of the Romans, cannot be too strongly recommended, as contributing to give strength and full latitude of motion to the joints of the upper extremities.

No. XXV.

ON THE MEANS OF PREVENTING THE INJURIOUS EFFECTS OF THE BITES AND STINGS OF SERPENTS, AND OTHER VENOMOUS ANIMALS.

In the course of an accidental conversation with a native of one of the West Indian Islands, he stated, " That wild boars have been found peculiarly destructive to all kinds of serpents, even the most venomous and the most powerful; and he wondered much, that more attention was not paid to so curious and interesting a circumstance."

I happened recently to mention this remark to a gentleman possessed of extensive property in Scotland, on which he observed, " That he could confirm the circumstance I had mentioned, from his own knowledge, for that the woods in his neighbourhood, were occasionally much infested with adders, but that, by keeping a few boars in his woods, the nuisance was soon got rid of, for the boars uniformly attacked, and completely destroyed, any viper or serpent they met with."

If these facts are corroborated from other places, (which there is every reason to believe will be the case, when the subject is more fully investigated), there can be no doubt, that means might be thought of, by which such shocking accidents, as now so frequently occur in various parts of the world, and sometimes even in Great Britain, might be effectually prevented. It is of peculiar importance, that this circumstance should be made known in our East Indian Colonies, in consequence of the prejudices of the natives *against the destruction of* ANY LIVING BEING. Serpents of all sorts are thence permitted to multiply almost unrestrained, and the European settlers frequently suffer from their bites; whereas, if boars were found to be an effectual preventive of their increase, these noxious animals might easily be kept under, if not almost totally extirpated.

Nor is this all; for the safety enjoyed from the bites of serpents by swine, is probably partly owing to the immense quantity of fat or oily matter in their bodies. Does not this tend to favour the idea, that greasy applications would be the most effectual means of preventing any mischief from the bites or stings of all *sorts of poisonous animals?* In proof of this observation it may be remarked, that *warmed salad oil*, has been used in such cases to advantage *. But if, instead of thin and soft olive oil, *some strong and permanent greasy matter, like tallow, or purified marrow*, or *bear's grease*, were rubbed upon the part, as soon as possible after the wound was inflicted, and frequently afterwards, is there not reason to hope, that these greasy ointments would be successful, in absorbing the poisonous matter, and preventing any injurious effects from it? Indeed I understand from a most respectable physician, that he found *bear's grease*, a favourite application in Germany against the bites of serpents, and it ought to be equally successful against the venom of every other animal.

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* See Code of Health, 4th edit. vol. i. pp. 510 and 515.

It is conjectured by some, that boars only attack *snakes*, and not *vipers*. There is no reason however, to believe, that they are more afraid of a venomous viper, than of a harmless snake, or that they suffer more from the bites of the one, than of the other. It would appear indeed, that the hog will attack and devour the rattlesnake, without injuring more the wholesomeness of its flesh, than the milk of the goat is rendered unhealthy, when the animal lives partly upon hemlock.

Serpents are of two sorts; *vipers*, that produce their young alive, and *snakes*, that lay eggs to be hatched. But this distinction is not always attended to by authors. The viper-catchers have a remedy in which they place great confidence, the *axungia viperina;* but, to be of use, it must be rubbed into the wound immediately after it is inflicted. The bites of snakes are not considered dangerous; but they necessarily occasion very unpleasant sensations, and are generally accompanied with swellings, and considerable pain.

There are four points which it is highly important to ascertain: 1. Whether *wild boars* will not destroy any species of serpent, however venomous or powerful. 2. Whether *the common boar* may not likewise be employed for the same purpose, at least for the destruction of the smaller sorts. 3. Whether some strong, permanent, greasy matter, immediately applied after the wound has been inflicted, will not, in many cases, prevent any injurious effects from the bites of serpents, and other venomous animals, a doctrine which the experience of Germany seems to sanction; and, 4. Whether the death of those who have been attacked by the more venomous sorts of serpents, is not owing to the blood *becoming curdled*, and consequently no longer capable of being circulated through the veins and arteries by the heart.

It is hoped that, by the circulation of this paper, these points will be cleared up.

On the whole, this is a subject of immense importance, from the essential benefit which multitudes, in various parts of the world, would derive from the application of such a remedy, if concrete greasy applications were successful. It is earnestly recommended therefore, to the attention of all public-spirited persons, who may have it in their power, to state important facts, regarding that, and other means of curing the bites of serpents, or of destroying such noxious animals *.

Additional Hints from Dr Hancock, on the Means of preventing the Injurious Effects of the Bites and Stings of Serpents, and other Venomous Animals.

It is affirmed by the natives of Guiana, that the *abuya*, pecary, or wild hog, is a mortal enemy to the rattlesnake, and other venomous serpents *. I have been told also, that the domestic hog has been known to kill and devour the rattlesnake on the coast of Berbice, where this reptile abounds, and where it very frequently kills horses and cattle, and even men. There is a black man, an African, on the plantation *Good Hope* Estate (East Coast Demerara), who can, with perfect impunity, take up the rattlesnake, and handle and caress it as he would the most inoffensive animal. He pretends to do this by first rubbing his hands with certain herbs: what these are however, has never been ascertained. It appears, these animals have their peculiar haunts, for although very numerous in Berbice, they are not found on the leeward coast of the adjoining colonies of Demerara and Essequibo; but there, the *bush-master* (quaima) resides, as sovereign of the forest. It would seem, that these two deadly serpents cannot exist together. I presume, it has never occurred to the people of Berbice, to keep herds of this most useful animal (the hog), for the purpose suggested in your paper; a project indeed most worthy of attention, especially as, in that climate, it requires no care, or human aid, for its increase. If, on my return to Demerara, I can furnish any elucidations on your queries respecting the use of the concrete oils,—regarding the coagulation of the blood of persons bitten by poisonous serpents, &c., I shall be most happy to do so, or on any other topic you may please to suggest.

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* Greasy applications might likewise be tried as a remedy for the bites of mad dogs, applied as soon as possible after the wound has been inflicted. Persons liable to such accidents, should always have a small box of concrete unctuous matter, as bear's grease, at command. It may be found of use also, against the stings of wasps, or bees.

N. B.—In all cases arising from the bites of the more lethal or poisonous serpents, such as the quaima and rattlesnake, I feel assured, whatever applications are used besides, that immediate suction and scarifying *are indispensable*. I beg leave to refer, on this important point, to the communication I sent to the *Lancet* of March 6. 1830, and to my paper in the 28th volume of the *Quarterly Journal of Science*.

This was also Dr Mead's opinion, as appears from the subjoined hints.

Dr Mead on the Bites of Serpents.

There is no work on poisons, that contains more valuable information on that subject, than Dr Mead's. He strongly recommends sucking the wound, washing the mouth well beforehand with warm oil, and holding some of it in the mouth while the suction is performing, by which it may be done with perfect safety. A strong vomit to be afterwards taken by the sufferer. Embrocating the wound with warm salad oil, he likewise recommends, as useful for abating the swelling. He adds, " that the clammy and viscid parts of the ' *axungia viperina*' involve, and as it were sheath, the volatile salts of the venomous liquor, and prevent their shooting out those crystalline spicula, which are the main instruments of that deadly mischief that attends the bite *.

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* The same is said of the mungous, and the monitor lizard. It would be desirable to be furnished *with facts*, in support of that assertion.

In the London Philosophical Transactions, No. 443, there is a long account of an experiment, to prove that *salad oil* is a remedy for the bites of vipers, which some experiments made in France soon afterwards however, tended to disprove. (Mem. Acad. Par. an. 1737). But though *a thin liquid*, like salad oil, may not prove an effectual remedy, yet there is reason to hope, from the experience of Germany, that a firm and concrete oily substance, as bear's grease, or purified marrow, &c. immediately applied, will have the effect of absorbing the venomous matter, or of " involving and sheathing the volatile salts of the venomous liquor, and thus preventing any material injury from the poison."

Hints from Dr Russell.

The only modern work, of distinguished eminence on the subject of venomous reptiles is, " *An Account of Indian Serpents*," by the late Patrick Russell, M. D., the first part of which was published by the order of the Court of Directors of the East India Company in 1796, and continuation of it in 1801. It is certainly a most valuable work, not only for the magnificent manner in which it is printed, but for the accurate descriptions, and valuable engravings of a great number of those noxious animals, with which it is accompanied. There is annexed to these descriptions, an account of a number of experiments on the poisonous effects resulting from the bites of several Indian serpents, and of the remedies which have been made use of against their attacks †.

Since the publication of Dr Russell's work, notwithstanding the encouragement given by the Directors of the East India Company to such inquiries, no additional publication on the subject of much note, has appeared ; yet the importance of such inquiries, not only to those who inhabit the territories of the East India Company, but to those who live in other tropical climates, cannot be questioned : for though but few serpents comparatively are venomous, yet the distinction is not generally known, and bites from those which are not venomous, must necessarily occasion much apprehension and uneasiness to those who suffer from them.

Dr Russell's work contains a number of experiments on the remedies applied to destroy the poison of serpents ; but the only remedy that the Doctor recommends is the " *Tanjore pill*," of which white arsenic is the chief ingredient.

In an experiment, (see No. 6. p. 54), a chicken had been well rubbed with oil, and afterwards exposed to the bite of a venomous snake. It expired in an hour and twenty minutes afterwards, *without convulsions*. This circumstance, Dr Russell thinks, might be ascribed to the oil, but it does not appear that any oil was ever applied, *after a bite from a venomous serpent,* with a view of preventing its bad effects.

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* See Mead's Works, vol. 45.

† If it has not been already done, it would be of great importance to have Dr Russell's work reprinted *on a small scale*, so as to be generally accessible, and at a moderate price.

In short, the means of destroying serpents by hogs, more especially those of the wild sort, and that of counteracting the mischievous effects of the bites of all venomous animals, by means of strong concrete greasy applications, as bear's grease or tallow, (which is sanctioned by experience in Germany), applied hot, when practicable, are points which do not appear hitherto to have obtained that attention to which they seem to be well entitled. They are particularly recommended therefore, to the investigation of those public-spirited and intelligent individuals, who reside in countries, the inhabitants of which are peculiarly liable to such fatal accidents; and it is hoped, that they will contrive to circulate, as much as possible, the result of their inquiries and experiments, for the benefit of mankind.

Instances of the Bites of Serpents being cured.

Major-General Hardwicke is actuated by the very laudable invitation Sir John Sinclair offers to the public, for the communication of facts in any way connected with the accident of a bite from venomous serpents, and the application of means to check the effects of the poison, to give to Sir John the two following, which he (Gen. H.) can attest.

FIRST CASE.

Henry N———, a stout healthy man, on his way from his own house to my quarters, was bitten in the calf of the leg by a Cobra-Capella, in stepping across a narrow ravine in the road. The accident was immediately communicated to me. On examining the leg, on the part bitten, a small livid spot was evident. I lacerated the part with the point of a pen knife, causing the blood to flow freely, and after wiping away the blood I covered the part with gunpowder, and set fire to it; the explosion was smartly felt; he was then made to drink off at a draught, half a pint of strong old Madeira, and to walk actively up and down for one hour.

The effect of the bite became soon evident, and he desired to sit down, but was prevented, by the danger being stated, if he did so; sickness of the stomach followed, and an extreme drowsiness, which rendered him incapable of walking without support. At the expiration of thirty-five minutes, all the foregoing symptoms passed gradually off, and the bowels became actively affected: at forty-five minutes he was more tranquil, and at the expiration of one hour from the time he commenced walking, I allowed him to be taken into the house; and his shirt, which was wet with profuse perspiration, was taken off, and his body well rubbed with dry towels. He was then put to bed, after drinking half a pint of strong wine and water warm. He soon became composed,—had a quiet night's rest,—and rose next morning without pain or inconvenience from the accident.—This case occurred in the East Indies, at the military station of Khan-poor, in 1798.

SECOND CASE.

London.—In June 1829, about 11 o'clock A. M., I incautiously seized a viper kept in a cage, from which it was trying to escape, when it turned quickly round, and bit me on the end of the third finger of my right hand. I had immediate recourse to the oil of a lamp, which I applied plentifully to the part bitten, and continued rubbing it in without intermission for about an hour and a half*. At the expiration of this time, I first met with a surgeon; he examined the wound, and made a deep incision with the point of his lancet; blood flowed freely from the cut: he next applied lint wetted in Goulard's Extract of Lead, and spread over the hand, and administered doses of volatile alkali, as strong as I could swallow it, every fifteen minutes. The hand swelled, and an inflamed line, about half an inch in breadth, extended along the arm, from the end of the finger to the elbow-joint, beyond which no discolouration of the skin was to be seen, or the slightest pain felt. At the end of about one hour and a half, I took my leave of the surgeon, with my arm supported in a sling, and continuing the evaporating lotion.

The only inconvenience I felt from the accident, was a sense of heat along the hand and arm, both of which were much swelled for about twenty-four hours, but both gradually subsided, and little inconvenience was experienced after the second day; the red mark continued on the arm, and a stiffness about the wrist-joint, but both disappeared in about a week.

THOS. HARDWICKE,
Major-General.

The Lodge, South Lambeth,
8th June 1831.

P. S.—Since this paper was drawn up, I have received information, that in North America, hogs are known to search after, and to devour snakes; and that an island above the Falls of Niagara, being much infested with rattlesnakes, a number of hogs were put upon it, by which these snakes were destroyed. I am in hopes of receiving, from some of my correspondents in America, an authentic account of so curious and important a circumstance.

Important Additional Information regarding the Bites of Serpents.

The author has lately had the pleasure of receiving a most valuable communication from Sir E. J. Murray Macgregor, Bart. Governor of Dominica, dated December 1. 1832, inclosing some interesting particulars, transmitted to him by Mr Bridgewater, collector of the customs at Dominica, regarding an effectual means of preventing and curing the bites of serpents.

Mr Bridgewater begins with stating, that his friend Monsieur

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* The General thinks, that the application of the oil was useful; and Dr Mead recommended olive oil, as an antidote to the bites of serpents; but strong greasy matter, applied in a liquid state, and well rubbed in, is more likely to be effectual.

Courchi, who resides at Martinique, had never heard of wild boars being destructive to serpents; but that he had seen the common hog bitten by a serpent, and that the bite was not attended with any bad effect, although it was found dangerous to mules and cattle; the heads of many of which, he has seen so swollen from the bite, as to occasion the death of the animal. In Martinique, Providence has provided a snake of a perfectly harmless nature, which wages perpetual warfare against those of a venomous description. The snake alluded to, is called "*The Couresse.*" The back of it is black, spotted with white. The under part is perfectly white. It is exceedingly active, and such is the estimation in which it is held by the planters and slaves in Martinique, that they do all in their power to preserve it from injury. The couresse not only kills serpents, but destroys rats, which, on sugar estates, are exceedingly destructive. A gentleman in Martinique, some years ago, saw an instance of a couresse swallowing a venomous serpent, on the public road, early in the morning. The head and neck of the latter were down the throat of the couresse; and it was the belief of all who saw it, that they must have combated with each other during the night. The couresse was about two feet in length, and the head about as large as the tip of a middle finger. The serpent was as long as the other, but thicker, and the head as large as the first joint of the thumb. Couresses are frequently taken in baskets from Dominica to Martinique, for the sole purpose of destroying the noxious serpents of that island.

In Martinique, the African negroes have an antidote for the bite of snakes, which they manufacture out of the leaves of certain plants, and the head of a serpent; the more venomous the serpent, the better the antidote. These ingredients are burnt together, and reduced to a powder, which is rubbed into incisions made with a sharp razor, about the wrists, ankles, knees, &c.; and it is a well-known fact, that persons so inoculated, encounter no danger from the bite of the most venomous snakes. Numbers have been inoculated with it, and they state, that the operation is by no means painful; but that, to preserve its efficacy, it is necessary to have it repeated every seven years.

Some negroes, it is said, have the art of charming snakes by merely whistling with two leaves of some particular plant in their mouth. The snakes immediately come from all quarters, when the men lay hold and handle them with impunity, even the rattlesnake. But Africans never destroy snakes, as serpents are worshipped by them. On an adjoining estate, the negroes had a very large one in the mill-house, which they regularly fed and worshipped; but a white overseer happening one day to see it, killed it with his cutlass. As the overseer died in a fortnight after, his death was attributed to his being poisoned by the Africans, in revenge for his having killed their idol.

The antidote used for the bite of snakes in Surinam, where the slaves were almost daily bitten, is that of rubbing the patient, from the neck down to the feet, with "Androm Theriac," a medicine prepared at Apothecaries' Hall, and sent out for the use of the estate. A small quantity of tartar-emetic, (as much as will cover the point of a pen-knife), is likewise given internally in a glass of wine. This mode of treatment creates vomiting and perspiration, and is so effectual, that in no instance, it is said, is a patient so treated being lost.

But the remedy that is most to be depended on is, the "Gombant musque," or musk ochra, (Hibiscus abelmoschus), a shrubby plant, with large yellow flowers, and remarkable for the rich musky taste of its seeds. It is known in the East by the name of Bammia moschata. It grows wild in Martinique, and since its discovery as an antidote, the bites of snakes are no longer attended with that danger, they formerly were. A wine glass of the juice of that plant, mixed with rum or brandy, it is asserted, cures the bite of the most venomous snakes, and prevents hydrophobia, &c.*.

* * *

There is every reason to hope, that a foundation is laid in the preceding observations, for obtaining two most important objects: 1. To ascertain the means by which any risk from the bites of serpents may be effectually prevented; and, 2. By propagating that valuable animal, "*The Couresse*," that the snake tribe, especially the smaller, which are the most venomous, might be kept under.

It were much to be desired therefore, that some intelligent author, as Dr Christison, who has already written so ably on poisons, would direct his attention to investigations, by means of which he might confer inestimable benefits on the human species.

N. B.—A small box, with the seeds of that valuable plant, (the Gombant musque), has been received by the author, and shall be sent to those public establishments the most likely to attend to its production in this country.

No. XXVI.

HINTS AS TO THE FEET.

THIS is a subject of much greater importance than is commonly imagined.

The first object is to get proper shoes. "*The measures*" taken by the shoemaker, seldom fit well. A last is made from them, which, though perhaps of the length of the foot, does not do justice to the shape of it.

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* (TRANSLATION).

Remedy used with success at Martinique against the Bites of Snakes.

Take as many grains of gombant musk as will half fill a bottle; beat it to very fine powder; fill the bottle with rum, and leave it to infuse. When a person is bitten, give him immediately a small glassful of this liquor, taking care to shake the bottle; if he should vomit it, give him another glassful; if it produce the same effect, give him a third.

Scarify slightly the part bitten, and put on it a cataplasm made of the thick refuse of the mixture. If the person find himself still uncomfortable next day, give him a small glassful of the liquor, and apply another cataplasm.

The sole of the shoe should be exactly the same size as the sole of the foot, of which the size should be exactly taken, on a piece of paper, for if the sole of the foot does not tread upon the sole of the shoe, corns, &c. are occasioned.

In order to have a perfect shoe, a cast of the foot and ankle should be taken in plaster of Paris, and from that cast, a last of cast iron should be made, as the shoe made from it, would fit exactly.

Corns are seldom completely extracted by corn doctors. When small, and not deeply indented, they may, after being poulticed, be extracted by the nails.

When there is no corn doctor near, they should be very carefully pared, and then covered with a diacolum plaster; care being taken that no bleeding is produced in endeavouring to extract them, as this occasions inflammation, and an increase of suffering.

It is highly necessary, for the preservation of health, to keep the feet as clean as possible, by washing them, every morning, in cold water, or cleaning them with a wet towel.

No. XXVII.

ON THE RING-WORM AND SCALD HEADS, FROM THE PRACTICAL SYNOPSIS OF CUTANEOUS DISEASES, BY DR BATEMAN.

These diseases go under the technical name of *Porrigo.* They are distinguished into six different sorts, so that it is not to be wondered at, that they should require different treatments; but the sort called the *Porrigo scutulata*, or *Ringworm of the scalp*, is one of the most common. It is reckoned very unmanageable, and is not perfectly cured until the redness disappears altogether, and the hair begins to grow of its natural colour and texture. This disease is sometimes spontaneous in children of a feeble or flabby habit, or where they are not sufficiently exercised; but it is principally propagated by contagion; *i. e.* by the actual conveyance of the matter from the diseased to the healthy, by the frequent contact of the heads of children, but more generally by the use of the same towels, combs, caps, and hats. Hence the multiplication of boarding-schools, appears to have given rise to an increased prevalence of this disease, among the more cleanly classes of the community, at the present time. For such is the anxiety of parents to regain the lost years of education, that they too often send their children to these schools, when capable of communicating the infection, although supposed to be cured, against which no vigilance on the part of the superintendants can afford a sufficient security.

When the eruptions are acrimonious, the zinc ointment may be tried, or an ointment prepared with the cocculus juices, in the proportion of two drachms of the powdered berry, to an ounce of lard, or a lotion of lime water and calomel may be used.

When the patches become dry and inactive, touching them with muriated tincture of iron, or any of the mineral acids, slightly diluted, in some cases removes the morbid skin or cuticle, and the new one assumes a healthy action. Sometimes a lotion, containing from three to six grains of the nitrate of silver, in an ounce of distilled water, will effectually remove the disease in this condition. Others recommend the *unguentum ad scabiem* of Bunyer, diluting it with an equal portion of simple cerate.

No. XXVIII.

DESCRIPTION OF "THE CAMPAGNA DI ROMA,"—THE MEANS OF PROMOTING ITS IMPROVEMENT,—AND OF OTHER DISTRICTS SIMILARLY SITUATED.

SINCE the paper on the subject of the Roman malaria was sent to the press, (Appendix, No. VIII.), my attention has been directed to an interesting work, entitled, "*Rome in the 19th Century*," in three volumes octavo, printed at Edinburgh, *an.* 1820. It contains a series of letters, written during a residence at Rome in the years 1817 and 1818, and is drawn up with so much ability, that the author need not have withheld his name. Indeed it was so popular a work, as to run through four editions. The information it contains, on the subject of the malaria, is highly interesting, and strongly in favour of making every possible exertion, to banish such a scourge from the most interesting part of Europe.

Description of the Campagna di Roma.

"That dreary solitude (the Campagna), stretches about twenty miles in every direction, to the base of those hills by which the plain is surrounded. To the west, a wild sullen flat extends to the sea. A profusion of bushy thickets, and a few solitary trees, were scattered over the broken surface of this uninclosed and houseless plain,—for it is a plain,—since, at the distance of sixteen miles, where we now stood, we distinctly saw Rome. But it is not a dead flat, as many have asserted; on the contrary, it is generally undulating ground, interspersed with broken hillocks, and steep banks, covered with wild shrubby oak-wood, or lonely flat-topp'd pine-trees."

"Over this wild waste, no rural dwelling, nor scattered hamlets, nor fields, nor gardens, such as usually mark the approach to a populous city, were to be seen. All was ruin; fallen monuments of Roman days,—grey towers of Gothic times,—abandoned habitations of modern years,—alone met the eye. No trace of man appeared, except in the lonely tomb, which told us he *had* been. Rome herself was all that we beheld. She stood alone in the wilderness, as in the world, surrounded by a desert of her own creation,—a desert, which accords but too well with her former greatness, and her present decay. It may perhaps be soothing to the contemplation of the traveller, or the fancy of the poet, to see the once-beautiful "*Campagna di Roma,*" abandoned to the wild luxuriance of nature, and covered only with the defaced tombs of her tyrants, and the scarce visible remains of the villas of her senators; but it is melancholy to reason and humanity to behold, an immense tract of fertile land, in the immediate vicinity of one of the greatest cities in the world, pestilent with disease and death, and to know that, like a devouring grave, *it annually engulphs all of human kind that toil upon its surface.* The unfortunate labourers, employed in the scanty cultivation occasionally given to the soil, to enable it to produce pasturage for cattle, generally fall victims to the baneful climate. Amidst the fearful loneliness and stillness of this scene of desolation, as we advanced through the long dreary tract that divided us from Rome, a few wretched peasants, whose looks bespoke them victims of slow consuming disease, occasionally reminded us of the tremendous ravage of human life, which this invisible and mysterious power is annually making."

"I need scarcely add, that the season of the malaria is during the summer, and that, from the fall of the autumnal rains in October, till the return of the midsummer heats, the atmosphere is perfectly salubrious."

"Thus the Campagna seems to be the alternate region of life and death. Amidst all the ingenious, and impracticable plans that have been proposed, to stop the progress of this dreadful scourge, the cause of it has never yet been satisfactorily explained; and till that be ascertained, it is obvious, that no remedy can be applied; if indeed it be within human controul, which is a more presumptuous than probable conclusion *."

Description of Rome.

"My eyes dimmed with tears when I gazed, for the first time, on Rome, and saw before me, the great, the ancient, the eternal city—the acknowledged queen of nations—the mistress of the world, the seat of glory, and the land of patriots, of poets, and of heroes.

"Other cities, however great or distinguished, are only the capitals of a country; but Rome is the metropolis of the world. Recollections dear to every human heart, in which every nation and people can sympathise, seem to make it the common mother of all. The awful ruins of its former greatness, the proud ornaments of its early years of glory, the accumulated memorials of long ages of vicissitude, and the noblest works of art and genius in every age, unite, in giving it an interest and a dignity, which no other spot on earth can ever boast. As I gazed upon it—all the long story of its fame, the deeds of its heroes, the shades of its philosophers, and the strains of its poets, burst upon my memory, and filled my heart with emotions that could not be repressed.

"Yet who, without emotion, could tread the soil ennobled by so many ages of glory, or behold, unmoved, a spot in whose very name there is enchantment? All that we have read, thought, admired and worshipped from our earliest years,—all that awakened our youthful enthusiasm,—all that exalts the mind, fires the imagination, or touches the heart, is concentered on the soil of Italy, and amidst the ruins of Rome *."

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* Rome in the 19th Century, p. 100.

On promoting the improvement of marshy Districts in France, and other Countries.

Who can peruse the preceding observations, without feeling the most anxious wish for the success of the proposed measures, to restore the fertility and the salubrity of the Campagna di Roma? Ably has a poet sung,

> " 'Tis Rome demands our tears,
> The mistress of the world, the seat of empire,
> The nurse of heroes, the delight of gods,—
> That humbled the proud tyrants of the earth,
> And set the nations free,—Rome is no more!"

Perhaps the best plan would be, to have a company erected, with a sufficient capital, to purchase, from the Roman Government, the property of the whole tract in question, *under the obligation of improving it.* The practicability of that improvement, I hope, has been clearly pointed out in the preceding observations, and that nothing is wanting, to complete that great object, but adequate funds to carry it on. It would certainly be necessary, previously to have the whole tract examined by skilful engineers from England, accustomed to the drainage and improvement of fenny districts, and who are also well acquainted with the burning and management of lime, for on the utility of that manure, great reliance may be placed. But, on the whole, there can be no doubt, that by the judicious application of skill and capital, the " Campagna di Roma," may be rendered as productive, *and as healthy a district*, as any tract, of a similar extent, and similarly situated, in any part of Europe.

The experience both of England and of Scotland has proved, in the most convincing manner, that by the introduction of agricultural improvements, the greatest changes may be effected in the climate of a district; and that it is possible to have luxuriant crops produced on the same soil, " *where formerly, noxious vapours abounded, impregnated with disease and death.*"

Attention to this interesting subject however, ought not to be restricted to the neighbourhood of Rome. In other parts of Europe, more especially in the department of the Bouches du Rhone in France, and above all, in the neighbourhood of Arles, the same measures might be adopted, *with almost the certainty of success*, and an extensive district exempted from disease, and brought into a state of productive cultivation. At present, the inhabitants of that rich country, pine under the attacks of agues during the greatest part of the year; whereas, by the means above suggested, that disease might be totally extirpated, and a district now unproductive, would be rendered the granary of France.

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* Rome in the 19th Century, vol. i. p. 97.

What credit would not the government of France obtain, by promoting so great an improvement?

What foreign possession could be put in competition with such an acquisition; the protection of which would not occasion any expense,—which could not be conquered by any foreign enemy,—which would give employment, and subsistence, to such multitudes of valuable subjects,—and which would also be the means of rendering France independent of other countries for grain?

It may be proper to add, that the epidemic disorder which now (April 1833), prevails in this country, is evidently of terrestrial origin, and must be occasioned by the exhalations of marshy ground, either at home, or on the opposite coasts of Holland. *The air* of a country can only be contaminated by exhalations *from the soil;* and the only means of prevention is, by draining, improving, and cultivating that soil, so as to preserve the purity of the atmosphere.

No. XXIX.

SOME ACCOUNT OF THE AGED PEOPLE, OF WHOM ENGRAVINGS ARE ANNEXED.

1. Isobel Walker, *aged* 112 *years.*

She was born in the parish of Daviot, in the county of Aberdeen, in Scotland. The date of her birth was established by the records of the parish of Rayne, in the presbytery of Garioch, where she was born. Nothing particular is known regarding her mode of living, or the circumstances which occasioned her long life; excepting, that she is said to have possessed a placid temper, and to have been in that medium state, in regard to leanness and corpulency, which is favourable to longevity.

2. Peter Garden, *aged* 131 *years.*

He was likewise a native of Aberdeenshire, in Scotland. He lived in the parish of Auchterless, in that county, and died on the 12th of January 1775. But little is known of his history, excepting that he was taller than is usually the case with old men. He was employed in agricultural labours nearly until his death; and preserved his looks so well, that he appeared, it is said, to be a fresher and younger man than his son, when both were advanced in years.

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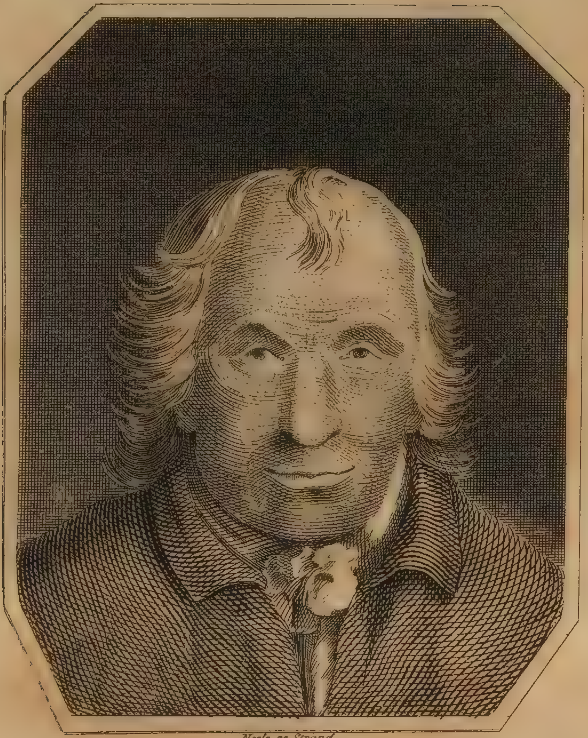
There have been several older people in Scotland than either Isobel Walker or Peter Garden; but unfortunately no picture or engraving of them can now be found. Among the rest was John Taylor, a miner at Leadhills, who worked at that employment till he was 112

Ja^{s}. & Jos^{h}. Neele sc 352 Strand

ISOBEL WALKER,
who lived in
The Parish of Daviot Aberdeenshire
and Died 2nd. November 1774.
Aged 112 Years.



Neele sc. Strand.

PETER GARDEN,

who lived in
The Parish of Auchterleſs, Aberdeenshire
and Died 12th Jan.y 1775.
Aged 131 Years.

Neele sc Strand

CATHERINE Counteſs of **DESMOND**

140 Years and upwards.

Neele sc. Strand.

THOMAS PARR,

Born in Shropshire Aº. 1483.

Dyed Novr. 15th. 1635, Aged 152 Years.

Buried in Weſtminster Abbey.

years of age. He did not marry till he was sixty, and had nine children afterwards. He saw to the last without spectacles; had excellent teeth, till within six years of his death, when he left off tobacco, to which he attributed their preservation. He died in 1770, after having completed the one hundred and thirty-second year of his age *.

Mr Pennant, the traveller, during his stay in the island of Jura, collected information which confirmed the account given by Martin, of the great age attained by Gillour Macrain, which exceeded that of Parr or Jenkins. He died in the reign of Charles I, after keeping 180 Christmases in his own house †.

3. *The* Countess of Desmond, *aged* 140 *years and upwards*.

She was daughter of the Fitzgeralds of Drumona ‡, in the county of Waterford; and in the reign of Edward IV. married James, fourteenth Earl of Desmond. She was in England in that reign, and danced at Court with his brother Richard, then Duke of Gloucester. She was at that time a widow; for Sir Walter Raleigh says, that she held her jointure, from all the Earls of Desmond since that time §. She lived to the age of some years above 140; and died in the reign of King James I. It appears that she retained her full vigour in a very advânced period of life; for the ruin of the House of Desmond reduced her to poverty, and obliged her to take a journey from Bristol to London, to solicit relief from the Court, at a time when she was above 140 ‖. She also twice or thrice renewed her teeth; for Lord Bacon mentions, in his History of Life and Death, *ter per vices dentiisse* ¶; and in his Natural History he states, that she did *dentire* twice or thrice, casting her old teeth, and others coming in their place.

4. Thomas Parr, *aged* 152 *years*.

Thomas Parr, the son of John Parr of Winnington, in the parish of Alberbury in Shropshire, was born in 1483, in the reign of Edward IV, and died in the Strand, London, anno 1635, consequently at the age of 152 years and some odd months. He lived in the reigns of ten kings and queens, and was buried in Westminster Abbey. He is said to have been a man of very different stamina from the rest of mankind, for a person who had seen him, describes him thus:

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* Pennant's Tour, vol. ii. p. 142.

† Pennant's Tour, vol. ii. p. 245. Buchanan, in his Hist. lib. i. mentions one Laurence, who lived in his time in the Shetland Islands, who married at 100 years, and died at 140, rather of old age, than of any distemper. Kentigern, also known under the name of St Mungo, who founded the Bishopric of Glasgow, was, it is said, still older, namely, 185 years. On his extraordinary age, and place of interment, the following verses were made:

> "Cum octogenos centum quoque quinque vir annos
> "Compleràt. Sanctus est Glasgow funere functus."
> *Spottiswood's Hist. of the Church of Scotland*, p. 11 and 112.

‡ Smith's History of Cork, vol. ii. p. 36.

§ Raleigh's Hist. of the World, book i. chap. v. sect. 5.

‖ Sir William Temple's Essay on Health and Long Life, fol. edit. of his Works, p. 276. Code of Health, 2d edit. vol. iv. p. 337.

¶ Bacon on Life and Death. Code of Health, 2d edit. vol. iv. p. 182. See Pennant's Tour in Scotland, 3d edit. vol. i. p. 85.

" From head to heel his body had all over
" A quick-set, thick-set, nat'ral hairy cover."

When he was about 152 years of age, he was brought up to London by Thomas Earl of Arundel, and carried to Court *. The King said to him, " You have lived longer than other men: what have you done more than other men?" He replied, " I did penance when I was an hundred years old." His great rules for longevity are well known— " Keep your head cool by temperance; your feet warm by exercise; rise early, and go soon to bed; and if you are inclined to get fat, keep your eyes open, and your mouth shut." Or in other words, " Be moderate both in your sleep and diet."—When his body was dissected, all his inward parts appeared so healthy, that if he had not changed his diet and air, he might perhaps have lived a good while longer †.

5. Henry Jenkins, *aged* 169 *years.*

The birth-place of Henry Jenkins is unknown, but there is satisfactory evidence of his great longevity. At the age of between ten and twelve, he was sent to North Allerton with a horse-load of arrows, previous to the battle of Flowden, which was fought on the 9th of September 1513; and as he died on the 8th day of December 1670, he must have been then about 169 years. He had been oft sworn in Chancery, and in other courts, to above 140 years' memory; and there is a record preserved in the King's Remembrancer's Office in the Exchequer, by which it appears, " That Henry Jenkins of Ellerton upon Swale, labourer, aged 157, was produced, and deposed as a witness." This deposition was taken in April 1665, at Kettering in Yorkshire ‡. There were also four or five persons in the parish where he lived, all of them reputed to be about 100 years old, who said, that he was an elderly man ever since they knew him.

Little is known of his mode of living, excepting that, towards the last century of his life, he was a fisherman, and not only used to wade the streams, but actually swam rivers, after he was past the age of 100 years. When he could no longer follow the occupation of a fisherman, he went begging about Bolton, and other places in Yorkshire. His diet is said to have been coarse and sour §. In the account given

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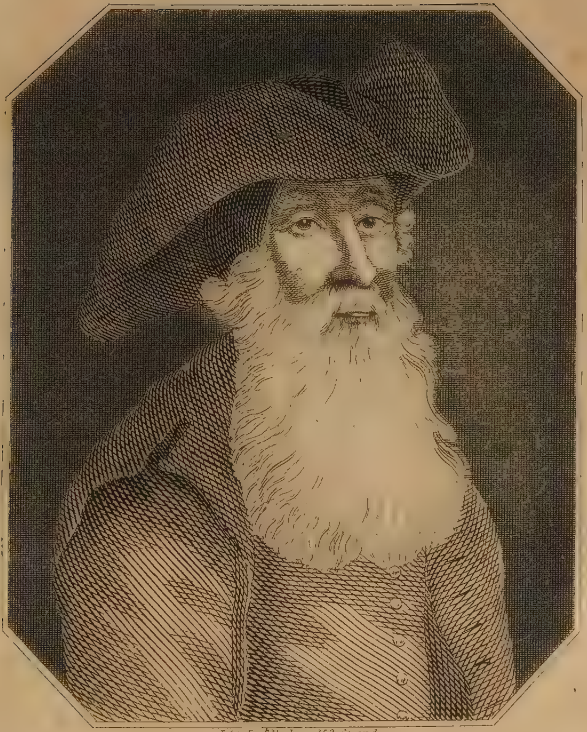
* Temple's Essay on Health. Code of Health, 2d edit. vol. iv. p. 337.

† There is a particular account of Old Parr in the Harleian Miscellany, vol. iv. p. 66; and in the Phil. Trans. vol. iii. p. 366. There is an anatomical account of the person and dissection of Thomas Parr, by the celebrated Dr Harvey, an abstract of which was printed in the 3d edition of the Code of Health, Appendix, p. 21.

‡ Philosophical Transactions, vol. xix. p. 543.

§ In the Phil. Trans. vol. xiv. p. 597, there is an account of a number of old people in the north of England. It is said, " their food in all this mountainous country is exceeding coarse, as salted beef and sour-leavened oat-bread."



Jas & Josh Neele sc 352 Strand

HENRY JENKINS,

of Ellerton in Yorkshire

who lived to the surprizing Age of 169

which is 16 Years longer than Old Parr.

Engraved for the Code of Health & Longevit

J&J.Neele sc 352 Strand

John Rovin in the 172d. & Sarah his Wife

In the 164th. Year of their respective Ages

From a picture now belonging to The Right Honble.
Sir John Sinclair Bart. Author of the Code
of Health & Longevity

of him in the Philosophical Transactions, (vol. xix. p. 226), it is lamented, that no information had been procured of his temperament of body, his manner of living, and all other circumstances which might furnish any useful instructions to those who are anxious to ascertain the means of attaining longevity.

6. *and* 7. SARAH ROVIN, *aged* 164, *and* JOHN ROVIN, *aged* 172 *years.*

The following is a translation of the inscription on the picture drawn of Sarah and John Rovin, an engraving of which is annexed.

"John Rovin, in the 172d year of his age, and Sarah his wife, in the 164th year of her age. (Grais Ritus). They have been married 147 years, and both born and died at Stadova, in the directory of Casanseber, in Temeswaer Banets; their children, two sons and two daughters, all yet alive. The youngest son is 116 years of age; and he has two great grandsons, the one in the 35th, and the other in the 27th year of his age."

Dated August 25. 1725.

A description of the picture from which the annexed engraving is taken, has been given in the following terms:

"The dress of the man, in the latter of those pictures, consists of a white frock, open at the bosom, and reaching almost down to his knees, and is confined round his waist by a girdle made of rushes, in which is hung a knife. He has trowsers the same colour as his frock, the bottom of which are fastened round his ankles by the straps of his sandals; he is standing, supported by a stick in his right hand, and his knees rather bent: in his left hand is a bundle of Indian corn, which he is presenting to his wife. What hair he has, and his beard, is a light grey; his eyes are quick, clear, and penetrating: in his whole deportment there is rather the appearance of a general decline of nature, but by no means those traces of old age which so strongly mark his wife. He is near an old ruin, and in the back-ground is a small fire kindled with dry sticks. His wife is sitting on a fragment of the ruin; on her head is a kind of coloured cap; and her gown or mantle, which reaches down to her feet, is coloured likewise. She stoops very much; her right elbow rests on her knee, and her hand is rather extended, to receive the corn from her husband, on which however, she is by no means intent, as the attention of them both appear to be occupied by some other object; her left hand crosses her right arm near the elbow, both of which are uncovered, as are also her feet, which, with her face, are very much wrinkled; and her neck and bosom particularly, discover the ruinous effects of time: in short, in her whole figure, there is the appearance of the extremity of old age. Near her feet is a handsome tortoise-shell cat sitting on the ground, who also appears very old. She is on the left, and her husband on the right-hand side of the picture."

8. PETRATSCH ZORTAN, *or* CZARTAN, *aged* 185.

In a Dutch Dictionary, entitled "*Het algemeen Historich Woonderbok*," &c. there is an account given of this ancient personage, of which the following is a translation:

"Czartan, (Petratsch), was born in 1537, at Kofrock, a village four miles from Temeswaer, in Hungary, where he had lived 180 years. When the Turks took Tameswaer from the Christians, he kept his father's cattle. A few days before his death, he walked, with the assistance of a stick, to the post-house of Kofrock, to ask charity of the travellers. He had but little sight, and his hair and beard were of a greenish white colour, like mouldy bread; and few of his teeth remained. His son, 97 years of age, was born of his father's third wife. Being a Greek by religion, the old man was a strict observer of fasts, and never used any food but milk and cakes, called by the Hungarians *kollatschen*, together with a good glass of brandy. He had descendents in the fifth generation, with whom he sometimes sported, carrying them in his arms. He died in 1724. Count Wallis had a portrait taken of this old man, when he fell in with him, previous to his death. The Dutch envoy, then at Vienna, transmitted this account to the States-General."

Translation of the Inscription on the Picture of Peter Zortan, or Czartan, an engraving of which is annexed.

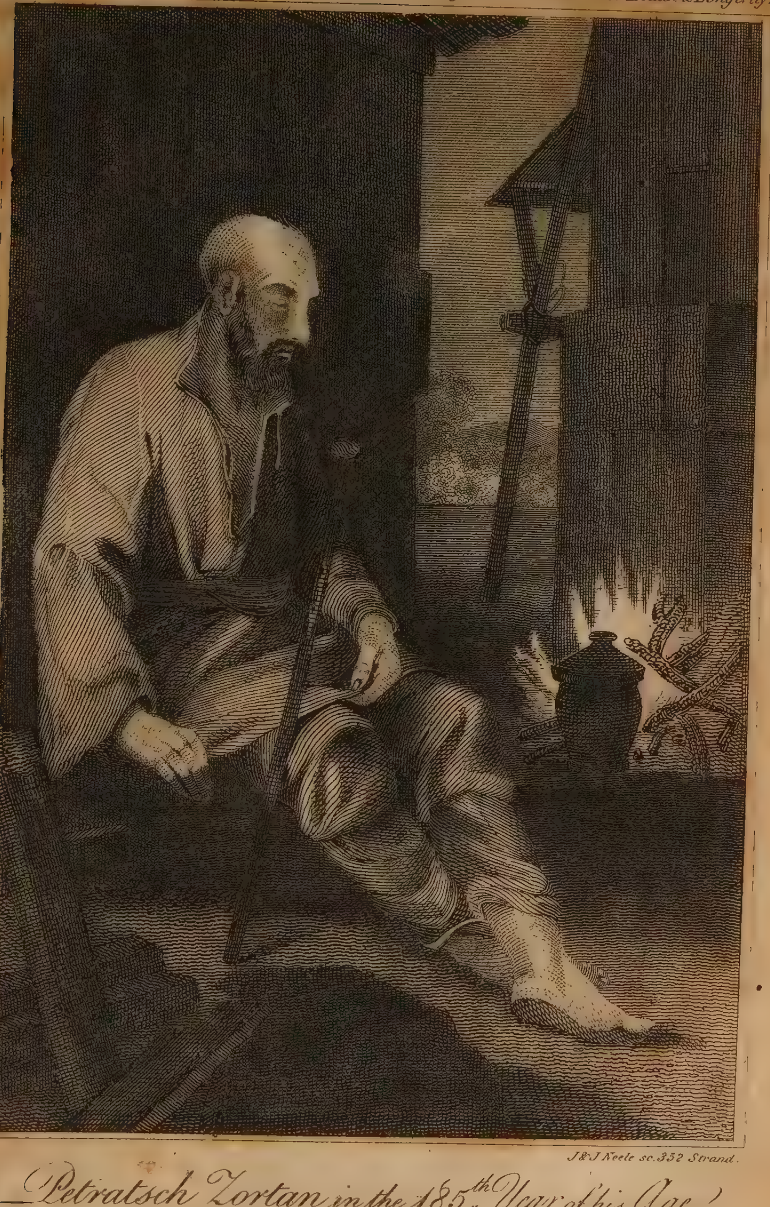
"Petratsch Zortan, a peasant at a village called Keveretch, in the Banet of Temeswaer, in the 185th year of his age: he died the 5th day of January 1723-4. His youngest son is alive, in the 97th of his age."

The following description will give the reader some idea of the picture of Peter Zortan:

"He is dressed in a white frock reaching down to his knees, and a pair of white trowsers tucked up at the ankles: round his waist is a girdle made of rushes: he has two front teeth remaining in his under jaw; he is sitting on part of a ruin in a very dark shade: he rests his right hand on his seat, and with his left holds the end of his frock, as if something was contained in his lap: his stick leans against his right knees; his left foot (the sole of which is rather turned up), crosses his right; and this part particularly, with his fingers, and the folding of his frock at the bosom, is executed with exquisite taste and judgment; his hair, of which he has very little, with his beard, is grey. He is boiling a pot resembling an urn, by a small fire near his feet; but he appears as if necessity obliged, rather than if inclination prompted him to do it, as his countenance is strongly expressive of languor and fatigue, and his eyes are cast on the pot with an air of great indifference. He is sitting on the left side of the picture."

It is supposed that these eight persons are the oldest of whom any picture is now extant. It was therefore considered proper, that engravings of them should be executed to accompany the *Code of Health and Longevity*.

Engraved for the Code of Health & Longevity.



J&J Neele sc.352 Strand.

Petratsch Zortan, in the 185th Year of his Age.

He died on the 5th Jany. 182$\frac{3}{4}$.

From a picture now belonging to the Right Honble
Sir John Sinclair Bart. Author of the Code
of Health & Longevity.

No. XXX.

RECEIPTS COLLECTED BY SIR JOHN SINCLAIR, REGARDING THE COMMON DISORDERS WITH WHICH THE PEOPLE OF THIS COUNTRY ARE APT TO BE AFFLICTED.

In carrying on an extensive correspondence, on subjects connected with health and longevity, the Author has had, at different times, transmitted to him a number of medical receipts. Some of the most popular of these he is now induced to publish, in the hope that they may prove useful, at least to those who do not enjoy the advantage of having medical advice at hand.

Colds.

On the commencement of catarrhal affections, it has generally been found the best means of insuring a speedy recovery, at once to desist from meat, beer, or wine, and to remain in bed for a day, taking the following medicines:

Take five grains of James' powder, and two grains and a half of calomel. Mix. Two grains of camphor, or one-half grain of opium to be added as circumstances may require: drinking freely of toast and water *.

Coughs.

A Popular Remedy.—Seven table-spoonfuls of treacle, or honey; seven table-spoonfuls of vinegar. Let them be boiled and skimmed, and put into a bottle till cool. Then add from 100 to 150 drops of laudanum. A table-spoonful to be taken at night, and a tea-spoonful in the morning.

Another.—Take six ounces of Italian liquorice, (that stamped Solazzi is by far the best), cut into small pieces, and put into an earthen jar, with a quarter of a pint of the best white wine vinegar; simmer together until the liquorice is dissolved, then add two ounces of oil of almonds, and half an ounce of tincture of opium; stir the whole well together, and it is fit for use. Take two tea-spoonfuls when going to bed, and the same quantity whenever the cough is troublesome in the day-time.

Mixture.—A mixture composed of half a pint of spring water, and a quarter of a pint of sweet oil, with two tea-spoonfuls of hartshorn, and a little fine sugar to sweeten it. The bottle must be shaken every time a spoonful or two is taken; to be taken even in the night time, if the cough be troublesome.

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* *Cure for a Cold.*—Marmontel had a cold of a singular kind. "It was a viscous humour, that obstructed the organs of respiration, and was attended with all the efforts of a violent cough, though he could not expectorate. Gatti, a physician of Florence, discovered a remedy for that complaint. 'It is only necessary,' said he, 'to dissolve the thick and glutinous humour, which impedes the action of the lungs, and the remedy is not unpleasant; you must drink plentifully of oxymel.' I only therefore diluted and mixed by the fire some excellent honey and vinegar; and the salutary use of the syrup, formed by this mixture, cured me in a very short time."—*Marmontel's Memoirs*, vol. iii. p. 30, printed 1805.

EXTRACT OF MALT.—*For a Cough or Hoarseness, Complaints in the Breast, or even Spitting of Blood.*

Over a peck of pale ground malt, pour as much hot, but not boiling water, as will thoroughly wet it, which will be from eight to nine quarts. Stir it well in the tub, and cover it close. Let it stand forty-eight hours, then strain it through a hair-sieve, but without squeezing the grains, and put the liquor into a well-tinned preserving pan, (or saucepan), over a gentle fire. Let it boil till it comes to a syrup as thick as treacle, (stirring and skimming it all the time), which sometimes takes eight hours; then put it into jelly-pots; and when cold, cover it with bladder to exclude the air.

A tea-spoonful to be taken fasting in the morning, and on going to bed, and oftener if necessary.

N. B.—The easiest and most expeditious method of making *Extract of Malt*, if living in a large town, is, to get from a brewer two or three gallons of the strongest ale wort, and boil it to the proper consistence. Common beer wort likewise answers, but, of course, requires a great deal more boiling to make it the thickness of treacle.

For a sudden Hoarseness.

A tea-spoonful of sweet spirit of nitre, (spiritus ætheris nitrosi), in a glass of water, may be taken at any time. This medicine is agreeable in its smell and taste, and cooling and diuretic in its effects.

For Sore Throats.

Take a glass of olive oil, or sweet oil, and half a glass of the spirit of turpentine. Mix them together, and rub the throat externally, wearing flannel round it at the same time. It proves most effectual when applied early.

Nitre Lozenges.

Nitrate of potass, (purified nitre), one part; refined sugar, three parts; beat them to powder; mucilage of gum-tragacanth, q. s. to form lozenges. The dose is one or two taken every second or third hour. These lozenges are useful for cooling the mouth, and in stopping the progress of inflammatory sore throat, when taken at the commencement. It is also a useful refrigerant in fevers.

Relaxed Uvula and Throat.

One tea-spoonful of common salt; one ditto of Cayenne pepper; one ditto of finely powdered sugar. Mix together. A small portion of this, to be placed upon the tongue at its root, in relaxed states of the throat and uvula. *Dr Yeats of Tunbridge Wells.*

Difficult Respiration.

Many persons have found benefit, when the breathing is affected, from taking a tea-spoonful of hartshorn, in a small basin of gruel, at bed-time. It promotes perspiration, and relieves the breathing. Mr Julius of Richmond in particular recommended it.

For the Asthma.

A large cup of strong coffee without milk, is said to afford temporary relief.

A useful Remedy.—Take of Battley's sedative, 15 drops; lemon juice, 3 drachms; mix with a drachm of syrup; take of the super-carbonate of soda, distilled water, nine drachms. The two doses to be mixed together, and drank while effervescing.

Toothache.

A remedy for the *toothache* has appeared in a late journal. Put a piece of lime, of about the size of a walnut, into a quart bottle. With this, rinse the mouth two or three times a-day, and clean the teeth, *using this water every morning.* If it taste strong, dilute it, for it should be just strong enough to taste of the lime, no stronger. I was tormented with toothache for weeks, till I used this mixture, but have never had it since. A friend to whom I recommended it, and who was a great sufferer, has been equally fortunate. She attributed hers to rheumatism. After a few weeks I asked her how the lime water succeeded:—" Oh," she said, " I have never had the rheumatism since." I am inclined to think, in both cases, it arose from scurvy in the gums. Lime is a powerful antiseptic, and is very likely to remove, or at any rate prevent this complaint.

Another.—At a recent meeting of the London Medical Society, Dr Blake stated, that the extraction or excision of the teeth was unnecessary. He was enabled, he said, to cure the most desperate cases of toothache, (unless the disease was connected with rheumatism), by the application of the following remedy to the diseased tooth:—" Alum, reduced to an impalpable powder, 2 drachms; nitrous spirit of æther, 7 drachms; mix, and apply them to the teeth."

Be careful in using acid gargles, as these have often proved the source of destruction to teeth.

A remedy to allay the Inflammation concomitant on Toothache.—20 grains of camphor; 2 oz. tincture balsam of Tolu; 2 oz. simple tincture of cinnamon. Mix. A tea-spoonful to wash the mouth with, and to be retained therein as may be convenient.

Toothache and Anti-Rheumatism Embrocation.

Sal volatile, three parts;
Laudanum, one part. Mix.

Rheumatism.

1 ounce of the spirits of turpentine; 1 ounce spirits of hartshorn; 1 ounce of opodeldoc, well mixed, make a good embrocation.

Stomachic Bitter.

Take four ounces of the infusion of columbo root; four ounces of the infusion of cascarilla bark; a drachm and a half of carbonate of potass. Mix them together, and take three spoonfuls twice or thrice a-day.

For Stomachic, or what are called Bilious Complaints.

It is not bile from the liver, but an acid generated in the stomach itself, which occasions the greater part of those stomachic disorders which are so injurious to the health. For these complaints the following medicine is recommended:

Take five grains of columbo root; five grains of rhubarb; and five grains of salt of soda. Mix the whole with cold water, and take the dose a quarter of an hour before dinner, either every day, or every second day, as the case may require.

If the medicine purges, put less soda in it.

This medicine has the effect of neutralising the acid. It is particularly necessary to secure that object, *before eating*, otherwise the acid mixes with the food, gets into the blood, and occasions one-half of the disorders with which the human race is afflicted.

Mixture.—Take thirty chamomile flowers; thirty grains of colombo root, powdered, and six drops of elixir of vitriol. Infuse them in half an English pint of boiling water in a covered vessel, for an hour; then strain the liquor, and take a small cupful once or twice a-day. It will keep the bowels in good order, without diminishing their strength. *Sir Walter Farquhar.*

Another.—Twenty-five grains powdered rhubarb; fifty grains testaceous, or shell powder, (which is preferable to magnesia); a small wine glass of brandy; a wine glass of peppermint water. Put these in a half pint phial, sweeten the mixture with two or three lumps of sugar, and fill up the vessel with water. Two table-spoonfuls three or four times a-day will in general be sufficient. To be taken, however, when required, from the state of the stomach.

Tincture of Rhubarb.

This is an excellent remedy for disorder in the stomach. The best mode of using it, is to take two tea-spoonfuls of it immediately before going to bed. The author prefers taking it soaked in soft bread, by which it is absorbed, and must consequently be digested by the stomach; whereas, if taken in a liquid state, it may pass away without doing much good. The taste, after a little use, is not disagreeable, and, at any rate, it is important to take it in the most effectual manner.

Rhubarb Pills.

Take of rhubarb in powder, and of chamomile flowers in powder, equal quantities. Mix them with treacle till of a proper consistency to be made into pills. Take two pills one hour before dinner.

Dr Warren.

Constipation of Bowels.

A Domestic Remedy.—Costiveness is universally prevalent in society, and thousands of persons are injured by habitually taking opening medicines. A basin of warm water, used with Read's patent domestic machine, opens the bowels instantly, without inconvenience or uneasiness, and removes indigestion, flatulence, spasms, bilious complaints, piles, fistula, and other disorders arising from a confined habit of body.

Aperient Pills.—A grain of ipecacuanha, and four grains of rhubarb, made into two pills, is a very excellent medicine in cases of fatigue from study and similar causes.

Aloetic Pills, from which the Author has found much benefit.—Take of aloes in powder, and soap, equal parts. Beat them with simple syrup into a mass fit for making pills. One to be regularly taken when going to bed, or, occasionally, one and a half, if necessary *.

Dinner Pill.—Take of aloes, one ounce and a half; of mastic, half an ounce. Powder these ingredients separately. Mix them in a sufficient quantity of syrup of wormwood to make into a paste. Put three grains in a pill. Great care must be taken to prepare the aloes properly in a strong tincture of liquorice. One or two of the pills to be taken every day before dinner is ended; but never use them on an empty stomach, as the dose is too small to be of any use unless it digest with the food. Continue the use of them for three months, or longer, if necessary, or, at any rate, they should be taken by those who indulge too much at a luxurious dinner. It is a curious circumstance, that medicine taken in this way, acts with tenfold effect, so that a single grain of a cathartic, swallowed in the middle of dinner, is equal in its effects to a full dose at bed-time. A medical friend informs me, that he finds the form of dinner pill, a most favourable mode of prescribing, not only purgatives, but tonic and other medicines, in dyspeptic and bowel complaints, as enabling him to do much good with small quantities of medicine.

Opening Medicine.—It is said, that a celebrated physician at Bury St Edmond's, (the late Dr White), used to keep by him a small pot of sulphur and treacle, thoroughly incorporated together, in the proportion of about two tea-spoonfuls of sulphur, to one table-spoonful of treacle; and was accustomed, when necessary, to take a full desert-spoonful of it, either at night, or early in the morning. This had such an effect in promoting a regular alvine discharge, so essential for the preservation of health, that he used jocosely to say to some of his friends, "If all my patients knew that remedy as well as I do, they would have but little occasion for medical advice."

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* By the use of these pills, and taking one table spoonful of white mustard-seed at breakfast, and another at dinner, the author is never troubled with constipation.

Aperient Pills.—Extract of aloes, one drachm; extract of gentian, Spanish soap, of each, half a drachm. Mix, and divide into twenty-four pills. One to be taken before dinner. *Dr Wardrop.*

Scalds, Cuts, and Bruises.

A celebrated Ointment for all kinds of Sores.—Take ¼ lb. beef marrow, ¼ lb. bees wax, ¼ lb. of almond oil, and 2 ounces of camphor. The bees-wax and marrow to be each separately melted and strained through a cloth, and mixed, and then add the oil and the camphor. The whole to be stirred till the mixture becomes quite cold, and then put up in small pots.

Green Oil.—Chamomile, southernwood, balm feverfew-wood, betony, rosemary flowers, red rose buds, of each a handful; take out the white parts of the rose buds, and shred all the dose well; put them into a quart of the best sweet oil for thirteen days, then boil it on a temperate fire for half an hour; put in four spoonfuls of aqua vitæ, six blades of mace, and a few cloves bruised. Strain it and cork it up. A small quantity to be put on the bruise or wound, and wrap it up in a linen rag.

Supposed Composition of Riga Balsam.—Take 1 lb. of the shoots of Scotch fir collected early in the spring, to which add 1 gallon of rectified spirit of wine; infuse in gentle heat for 7 days, and strain the liquid for use.

Others say, that it is merely spirits of wine coloured by tincture of saffron.

Remedy for a Sprain.

Camphorated spirits of wine, best white-wine vinegar, spirit of turpentine, in equal quantities, mixed together. To be rubbed on the part.

For Rheumatic or Gouty Swellings.

The proportion to be half a pint of brandy, a quarter of a pound of black soap, two ounces of camphor, heated over the fire, till it forms an ointment. To be applied to the parts affected with flannel, and frequently rubbed in.

Useful properties of Common Spurge, (Euphorbia Helioscopia.)

Warts or corns anointed with the juice of this plant presently disappear. A drop of it put into the hollow of a decayed and aching tooth destroys the nerve, and consequently removes the pain.—Some people rub it behind the ears that it may blister, and by that means give relief in ear-ache.

Cure for Erysipelas.

A large breakfast cup of strong elder-flower tea, (without sugar or cream), taken an hour before breakfast, every morning for six weeks. If you begin when they are in flower, so much the better; but if you cannot get them then, use the dried flowers, and other six weeks before the end of the year. If the erysipelas is on you, take the cup twice a-day, taking care not to take it near the time you are to dine or sup.

Deafness from deficient Secretion of Wax.

One part of oil of turpentine, and two parts of almond oil mixed. Two drops introduced into the ear at bed-time. Also equal parts of opodeldoc and almond oil, introduced into the ear, milk warm, morning and evening, with a hair pencil.

For Piles.

Take Harrowgate water. Anoint the part with tallow, and bathe it with tincture of oak bark.

The Cramp.

Rub the calves with ether at bed-time. Dr Heberden recommends five drops of tincture of opium, and 40 of tincture of assafœtida.

Others recommend rolls of brimstone in bed, and some say, gall-nuts worn in the pocket are effectual in preventing it.

Corpulency.

Castile soap pills are said, by an intelligent correspondent of the author, to reduce corpulency.

Bowel Complaints.

Two tea-spoonfuls of the best tincture of rhubarb; the same quantity of sal volatile, and as much calcined magnesia as will lie on a shilling, mixed in a little warm water, and taken when going to bed.

Looseness.

Chalk Mixture.—Prepared chalk, from two to six drachms; mucilage of gum-arabic, one ounce; peppermint water, two ounces; well water, five ounces. Mix well together. A table-spoonful to be taken after every loose stool.

Receipt for the Oatmeal Poultice to be used in Inflammatory Complaints.

The oatmeal must be thoroughly moistened with *cold* water, which prevents its becoming clotted; it must then be put in a pan, over the fire, made perfectly hot, and applied, put up in linen, to the part where the inflammation is, as warm as it can be borne. It is particularly useful in swelled faces; and may likewise be of use in gouty cases, where the parts are inflamed, and even in the rheumatism and lumbago.

Receipt for improving the Sight, and strengthening the Optic Nerve.

Take six ounces of the spirits of wine, one drachm of camphor, and a bunch or two of the flowers of elder. Infuse them in a bottle, and apply the liquid to the forehead, the temples and the eyelids, dabbing them with a rag morning and evening. Sir Stephen Fox, at the age of sixty, first applied it, and for upwards of twenty years he never had occasion for spectacles.

Petit Lait.

There are various modes of preparing the French *petit lait*, but the two following are the most common: 1. Take two whites of eggs, well beaten, add them to four pounds of milk; make it boil, and the curdy part will separate; pour off the clear fluid, and strain it through linen three times; the *petit lait* will then be very limpid and good. 2. To fresh whey, when cold, add the white of an egg for each pound of liquor, and mix them well by beating, Set the liquor on the fire to boil, and, during the ebullition, throw in eighteen or twenty grains of cream of tartar; then pass it through flannel, and afterwards through filtering paper.

Value of Wine in Medicine.

Though, in common cases, a small quantity of wine, as a tonic, may be sufficient, yet in some disorders, particularly in the typhus fever, it is given in much greater abundance. Trotter, in his Medicina Nautica, vol. i. p. 287 and 290, after observing that wine is the most grateful of all stimulants in low fevers, adds, that he has given it to the extent of four pints in twenty-four hours; and that, under particular circumstances, even a greater quantity of wine may be proper.

In the putrid sore throat, also in the small-pox, when attended with great debility, and symptoms of putridity, in gangrenes, and in the plague, wine is to be considered as a principal remedy; and in almost all cases of languor, and of great exhaustion of strength, wine is proved by experience, to be a more grateful and efficacious cordial, than can be furnished from the whole class of aromatics.

The use of wine as a cordial in fever, is of very ancient date. Pliny the elder says: Cardiacorum morbo, unicam spem vino esse certum est. Aretæus, and Cælius Aurelianus, give similar evidence. See Trotter's Essay on Drunkenness, p. 38. Plutarch reports, that when the plague raged in the army of Julius Cæsar in Africa, no remedy was found so effectual as good and generous wine. Asclepiades wrote upon the use of wine, which he introduced into almost every remedy, observing, that the gods had not bestowed a more valuable gift on men.—*Pliny*, L. 23. No. 1.

Comparative Nutriment of Food.

There was lately a very interesting report on this subject, presented to the French Minister of the Interior, by Messrs Percy and Vauquelin, two members of the Institute. The result of their experiments is as follows: In bread, every hundred pounds weight are found to contain eighty pounds of nutritious matter; butcher meat, averaging the various sorts, contains only thirty-five pounds in one hundred; French beans, (in the grain), ninety-two in one hundred; broad beans, eighty-nine; peas, ninety-three; lentiles, a species of pea, little known in England, ninety-four pounds in one hundred; greens and turnips, which are the most in use of all vegetables for domestic purposes, furnish only eight pounds of solid nutritious substance in one hundred; carrots fourteen pounds; and what is very remarkable, as being in opposition to the hitherto acknowledged theory, one hundred pounds of potatoes yield only thirty-five pounds of substance valuable as nutrition. One pound of good bread is equal to two pounds and a half or three pounds of the best potatoes; and seventy pounds of bread and thirty pounds of meat, are equal to three hundred pounds of potatoes,—or, to go more into detail, three quarters of a pound of bread and one-third of a pound of meat are equal to three pounds of potatoes; one pound of potatoes is equal to four pounds of cabbage and three of turnips; but one pound of rice, broad beans or French beans (in grain), is equal to three pounds of potatoes. This calculation is considered perfectly correct, and may be valuable in families, where the best modes of supporting nature should be adopted, occasioning the least expense.

Spruce Beer.

The following is an excellent mode of making it: Take of water 16 gallons, and boil the half of it; put the water thus boiled, while in full heat, to the reserved cold part, which should be previously put into a barrel or other vessel; then add 16 pounds of treacle or molasses, with a few table spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation be abated. Then close it up, or bottle it off, and it will be fit for being drunk in a few days afterwards. It is a powerful antiscorbutic, and very useful in long voyages; and, by means of the essence, it can be prepared with little difficulty, in places where the spruce fir itself cannot be got.

Receipt for making Mum.

Mum is properly a German liquor. It is made of several sorts of grain, in the following proportions: To seven bushels of wheaten malt, add one bushel of oatmeal, one bushel of ground beans, and a variety of other articles, as the tops of fir, wild thyme, &c. &c. also ten new-laid eggs. The whole ought to be infused in sixty-three gallons of water, boiled down to forty-one. The English mode of making this sort of liquor differs considerably. But, on the whole, it is not accounted a wholesome beverage.

Ginger Tea.

Sir Joseph Banks, in 1784, gave the following account of the effect of ginger tea upon him.

"I have taken two tea-spoons, heaped up, of ginger powder in a pint of milk, boiled with bread, and sweetened with sugar, for breakfast, for more than a year past. The weight of the ginger is between two and three drachms. At first this quantity was difficult to swallow, if the ginger was good. I was guided in my quantity by the effect it had on my stomach; if it made me hiccough, the dose was too large.

"I found occasionally that it produced *ardor urinæ;* but this went off, without any ill consequences whatever.

"I have not yet found it necessary to increase the dose; but I use rather a coarser powder than I did at first, which mixes more easily with the milk, and probably produces rather more effect than the fine.

"The late Lord Rivers took ginger in large doses for more than thirty years; and at eighty was an upright and healthy old man.

"I have, since I used the ginger, had one fit of the gout; but it was confined entirely to my extremities, and never assailed either my head, my loins, or my stomach, and lasted only seventeen or eighteen days; but the last fit I had before I took the ginger, affected my head, my stomach, and my loins, and lasted, with intervals, from the end of October to January."

Lemon and Orange Peel Tea.—An intelligent author asserts, that he has known a disordered stomach entirely recovered by the use of lemon or orange peel, infused in the same manner as tea.—*Cleland's Institutes of Health*, p. 22.

Receipt for making Toast and Water.

Take a slice of fine and stale loaf bread, cut very thin, (as thin as toast is ever cut); and let it be carefully toasted on both sides, until it be *completely browned all over*, but nowise blackened or burned in any way. Put this into a common deep stone or china jug, and pour over it, from the tea-kettle, as much clean boiling water as you wish to make into drink. Much depends on the water being in a boiling state. Cover the jug with a saucer or plate, and let the drink cool until it be quite cold; it is then fit to be used; the fresher made the better, and of course the more agreeable.

Barley Broth.

Take a tea-cupful of pot or pearl barley, and one gallon of water. Boil gently for half an hour, then add three pounds of lean beef, or neck of mutton, some carrots and turnips cut small, a pint of green pease, if in season, and some onions. Let the whole boil gently for two hours longer in a close soup-kettle, when the broth will be fit for use. This is a wholesome national dish, giving the stomach no trouble, as the chyle produced by it is of a mild balsamic nature, and incapable of furring up the glandular system. See Culina Famulatrix Medicinæ, p. 80.

Curry Powder.

Take of powdered coriander seeds, carraway seeds, cumin seeds, each half an ounce; turmeric, six drachms; powdered cardamoms, white pepper, Cayenne, each two drachms. Mix extremely well together.

Receipt for making Bread of a Superior Quality.

Take ten pounds of the best flour, made up with equal quantities of milk and water, in which one egg, and the usual proportion of yeast and salt, have been thoroughly mixed; to be baked in tin cases.

Receipt to make good Bread from the Flour of grown Corn.

Mix one ounce of magnesia with every stone of flour; then make the bread in the usual way. Magnesia restores those properties to the flour it has lost by growing, and is quite imperceptible in the bread both as to taste and effect.—*Worcester Journal, November* 8. 1821.

Receipt for destroying Flies, viz.

Take 1 pint of milk, 1 quarter of a pound of raw sugar, 2 ounces of ground pepper; mix and simmer for 8 or 10 minutes over a gentle fire; to be put into shallow dishes, and placed where required.

Walnut Water.

Dr Sully of Wiveliscombe, a very eminent medical practitioner, published a mode of preparing this article, which has been found so effectual a remedy in subduing nausea and vomiting: Take a quarter of a peck of walnuts at the time they are fit for pickling; bruise them, and with four ounces of fresh angelica seeds, put them into an alembic, with a bottle of French brandy, and enough of water to prevent empyreuma, or burning; distil from this mixture a quart, which is called walnut water, and administer a wine-glassful to the patient, to be repeated every half hour till the vomiting ceases. Dr Sully says, that he communicated this recipe to Sir Astley Cooper and Mr Abernethy, both of whom frequently used it in their practice, and that it has been prepared by a house in London for him for the last 40 years.

ON SOME RECENT IMPROVEMENTS CONNECTED WITH THE PRESERVATION OF HEALTH.

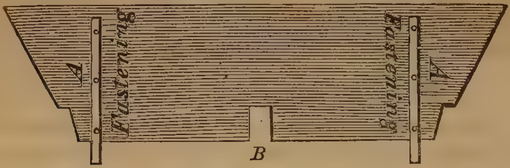
1. *On Ventilation.*

It is highly important, with a view to the preservation of health, to attend to the ventilation of apartments which are much used as sitting rooms, or as bed-rooms. For that purpose, it is of great use to have the power of bringing down *the upper sash of the windows*, by means of pulleys. The advantages of that plan however, are greatly improved by what may be called "*A Ventilator*," fixed at the top of the upper sash, so that it comes down with it. The air is thus conveyed to the top of the room without incommoding those inhabiting it. For this purpose, it is recommended, not only that there should be additional pulleys and ropes, for the purpose of opening and shutting the upper portion of the window sash, but a *ventilator* should be fixed.

This contrivance may be resorted to with great advantage, not only in public offices, but in churches, where the congregations suffer, either from heat, or from the injurious way in which cooling winds are allowed to blow into the building.

The following sketch exhibits the nature of this ventilator.

An Air Conductor.



A.—The fastenings to the upper part of the sash.
B.—The aperture for the pulley ropes.

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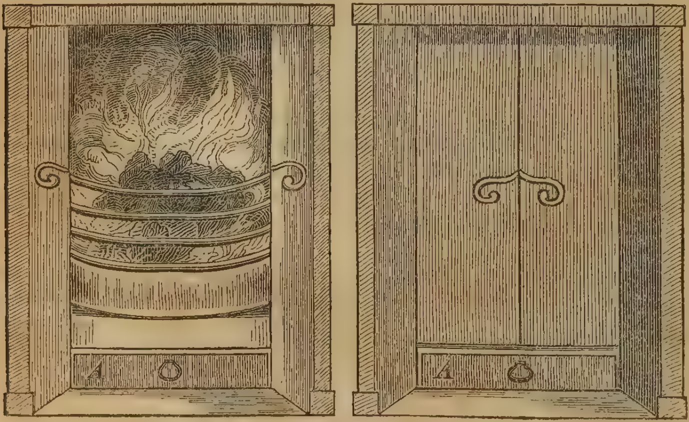
2. *Improvements in Chimney Stoves.*

The common grate often produces much inconvenience: It is impossible to extinguish the fire at once; and the usual method of putting the live coals under the grate, is not only liable to fill the room with smoke and ash-dust, but has not unfrequently proved the cause of destructive fires, the heated hearth-stone having ignited the joists beneath it; while in bed-rooms, if the fire be left burning, the inmates are exposed to the annoyance and risk of dust and smoke in the early part of the night, and to the draught of the chimney and back smoke, as the night and morning advance. It was with a view to remedy these risks and inconveniences, that the author was induced to contrive a means by which the grate and its contents might be completely shut up, and the fire quickly extinguished, without risk or inconvenience to the inmates. The ashes, at the same time, fall into a box below the grate, so that they can be removed with little risk of being dispersed in the apartment.

This plan is not only recommended for bed-chambers and private rooms generally, but as being well worthy of adoption in public offices, or wherever there is a risk of fire, from the fire being necessarily left in a burning state.

Plan of the proposed Grate in an open state, and shut.



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